

1923

Box 1



MINISTRY OF TRANSPORT AND MINISTRY OF HEALTH.

---

# INTER-DEPARTMENTAL COMMITTEE

ON THE

# THAMES AND LEE CONSERVANCIES.

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## REPORT AND APPENDICES.

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1923

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MINISTRY OF TRANSPORT AND MINISTRY OF HEALTH.

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INTER-DEPARTMENTAL COMMITTEE ON THE THAMES AND LEE  
CONSERVANCIES.

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*Terms of Reference.*

We hereby appoint the following to be a Committee—

- (1) to examine the revenue and expenditure of the Thames and Lee Conservators, and to consider the sources from which their revenues are derived, and to report whether and to what extent and from what sources any additional revenues could be brought into contribution;
- (2) to consider and report what modifications, if any, are desirable in the constitution, powers or duties of the Thames and Lee Conservators as the result of recommendations made under the first part of this reference;

The Right Hon. LORD NEWTON, Chairman,  
Mr. H. B. BETTERTON, M.P.,  
Mr. G. HAMMOND ETHERTON, Town Clerk of Liverpool,  
Mr. J. R. BROOKE, C.B., Ministry of Transport,  
Mr. R. J. SIMPSON, Ministry of Health,

and we further appoint Mr. J. HUTT, M.B.E., to be Secretary.

(Sgd.) PEEL	(Sgd.) ALFRED MOND
Minister of Transport.	Minister of Health.

20th March, 1922.

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*Note Regarding the Evidence.*

A Report of Proceedings was published in uncorrected proof form immediately after each meeting, together with an Appendix containing the written statements of evidence relating to such meeting; and any important corrections to these proofs were notified by means of addenda issued with subsequent Reports of Proceedings.

The Reports of Proceedings and Appendices containing the statements of evidence can be referred to by interested persons on application at the offices of the Ministry of Transport or Ministry of Health, where a limited number of copies have been filed.

The marginal references in the text of the Report are to the serial numbers of questions put to witnesses and to the distinctive letters and numbers of statements handed in.

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*Expenses of Committee.*

The expenses of the Committee amounted to £558, of which £72 represents the cost of the printing of this Report, and £460 the cost of the printing of the Reports of Proceedings and Appendices above referred to. £190 has been recovered from sales of these Reports of Proceedings and Appendices.

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## REPORT.

To

The Right Honourable SIR JOHN BAIRD, Bart., C.M.G., D.S.O., M.P.,  
Minister of Transport,  
and Lieut.-Colonel the Right Honourable SIR ARTHUR S. T. GRIFFITH-BOSCAWEN,  
Minister of Health.

In accordance with the terms of your predecessors' joint minute of appointment, dated 20th March, 1922, we have investigated the matters therein referred to us for consideration, and have the Honour to submit the following Report :—

## PRELIMINARY.

1. At the outset we decided that it was advisable to hold our meetings in public, and that it was unnecessary for persons or bodies desiring to give evidence to be represented by counsel. In addition to inviting evidence from riparian local authorities and such other bodies as appeared to be interested in the matters under consideration, notices were published in the London and local press. Nine public meetings were held, and forty-eight witnesses were heard.
2. We dealt in the first place with the Conservancy of the River Thames, and in the second place with that of the River Lee, our Report being divided accordingly into two sections.
3. At the invitation of the Thames Conservators, the Metropolitan Water Board, and the Lee Conservancy Board, we visited the River Thames, the works and installations of the Metropolitan Water Board, and the River Lee; these visits were most instructive and we desire to record our appreciation of the courtesy and assistance rendered to us by the Boards and Officers of these undertakings.

Procedure.

Visits of Inspection.

## REASONS FOR THE APPOINTMENT OF THE COMMITTEE.\*

4. The Conservators of the River Thames were constituted by the Thames Conservancy Act, 1857, with jurisdiction over the River from Yantlet Creek, practically opposite Southend, to the London Stone at Staines. By the Thames Navigation Act, 1866, their jurisdiction was extended to Cricklade in Gloucestershire and for three miles up all tributary streams. The Thames Conservancy Act, 1894, extended their jurisdiction over the whole course of the river and all tributary streams; but by the Port of London Act, 1908, the lower part of the river, below Teddington, was placed under the Port of London Authority.
5. The revenue of the Conservators has always been derived from tolls and charges and from contributions by water undertakings in consideration of the water abstracted, such payments being regulated by Acts of Parliament of various dates.  
During the war the Conservators found it impossible to maintain their undertaking in its normal condition, and in 1919 they requested the Minister of Transport to exercise his powers to enable them to increase their tolls and charges. The Minister referred the matter to the Rates Advisory Committee, who reported that in their opinion the Conservators ought to apply to Parliament for an Act increasing the contribution of the Metropolitan Water Board by a very substantial amount, and that upon the assumption that this action would be taken they recommended increases in the tolls and charges.
6. The Lee Conservancy Board was constituted by the Lee Conservancy Act, 1868, with jurisdiction over the River Lee from its source down to the Boundary Marks in Bow Creek, and all tributary streams; their revenue has been derived, in a similar manner to that of the Thames Conservators, from tolls and charges and from water rents.
7. In 1921 the Thames Conservators and the Lee Conservancy Board promoted Bills to increase their tolls and charges and the contributions of the Metropolitan Water Board and other water companies. On second reading these Bills and a Bill promoted by the Metropolitan Water Board to raise their charges for the supply of water were taken together, and as a result of views expressed during the debate, the Parliamentary Secretary of the Ministry of Transport announced that it was the intention of the Minister of Transport and the Minister of Health to set up an inter-departmental committee which would take into consideration the broader question as to the basis upon which the revenues of the Conservancies should be provided. In the course of his speech he said that it might be quite right at that stage to revise the method of obtaining the revenue of these undertakings, and to consider, for example, whether local authorities through whose territory the rivers flow might properly be asked to make some contribution towards the Conservancies, and other

\* A short historical survey of the salient features in the administration of the Rivers Thames and Lee will be found in Appendix Q.



points of a like nature; the report of such a committee would no doubt be useful to Parliament at any time when it became right to revise the charges made by the Conservators, in view of the time limit which was being proposed for the operation of the increased payments to be made by the Metropolitan Water Board.

8. The Conservancy Bills were opposed by the Water Board, and Metropolitan local authorities, but the Chairman of the Joint Select Committee to which they stood referred drew attention to the proposed inter-departmental committee and a ruling was given that the Joint Select Committee would not hear evidence or arguments as to whether fresh contributories should be brought in, but only as to the method of increasing the revenue of the Conservancies for the purpose of enabling them to carry on pending the decision on the broader issue.

#### PART I.—THE THAMES CONSERVANCY.

##### The Duties of the Conservators.

9. As the River Thames holds a unique position in the United Kingdom we have not been able to draw any comparison with other waterways or find in their administration any general precedent which might guide us in the course of our Inquiry. The Thames Conservators have two chief public duties to perform: that of maintaining the river and its navigation, and that of preserving the purity of the water. They have also other duties of an administrative and supervisory character.

#### THE THAMES CONSERVANCY EXPENDITURE.

##### General Observations.

10. The expenditure incurred in the performance of these duties may conveniently be considered under five main heads:—

- (a) Maintenance of the river and works
- (b) Navigation and regulation of water
- (c) Prevention of pollution
- (d) Head office expenses and general charges
- (e) Interest and sinking fund on loans

and Appendix A shows, under these heads, the expenditure for the years 1913-1921 and the estimated expenditure for 1922. Appendix L gives the averages over the years 1913-1920.

Q. 31; 199;  
396-7;  
1395; 1548;  
1842; 1845;  
2139-42;  
2252; 2289;  
2378-9;  
2746.

11. No complaint has been made to us of any wasteful or inappropriate expenditure by the Conservators, and such suggestions as have been made have related to the omission by the Conservators of further expenditure on the execution of items of work which were considered desirable by witnesses. A large number of witnesses testified that they were satisfied with the work of the Conservancy, and we have been impressed with the efficiency, foresight and economy with which the Conservators have carried out their important public duties.

We will now examine the Conservancy expenditure under each of the headings indicated above.

##### (a) Maintenance Expenditure.

12. The expenditure incurred on the maintenance of the navigation and river works amounted to £49,122 in 1921 (*see* Appendix A), the average for the years 1913-1920 being £18,847 (*see* Appendix L). We were desirous of giving in our Report some indication of the amount which it might be anticipated that the Conservators would normally have to spend in future years on the maintenance of the river works, but we were unable to base any forecast upon the expenditure incurred during the years of war or subsequent years, since during the war the maintenance of the river fell into arrear, and expenditure since 1918 has been inflated by high costs of labour and materials. In these circumstances we asked the Conservators for any further information which they might desire to furnish upon this question and, for the reasons given in Appendix D, we are satisfied that the cost of maintenance of the river is about £63,000 per annum at the present time.

##### Contentions of the Metropolitan Water Board.

Q. 42-3; 51;  
104-7;  
155-9;  
248-55;  
274; 276-8;  
281-3;  
285-6.

13. The Metropolitan Water Board contended that much of the maintenance expenditure was unnecessary in the interests of water supply, and that for instance the upkeep of the towpath system, the dredging, and the maintenance of the weirs other than those in the immediate vicinity of the water intakes was of no benefit to the water supply. In their view no weir above that at Boveney, near Windsor, was of any value to the Water Board. They pointed out also that they were already under statutory obligation to defray half the cost of reconstructing or adapting as a gauge weir and weir next above or below an intake.\*

Q. 926-7;  
1217-24;  
1240-51;  
1276-8.

14. The witnesses of the Thames Conservancy, on the other hand, contended that the effect of every weir throughout the course of the river was to impound in the gravel beds adjoining the stream quantities of water in excess of the visible flow. Upon this question of the effect of the weirs in impounding water there is such complete divergence of opinion

\* Sect. 13, Thames Conservancy Act, 1911.

between the engineers of the two undertakings, and the problem is in itself so technical, that we do not feel able to express a view; we think, however, that it may be a factor of importance in time of drought.

15. In our opinion a considerable reduction in the cost of upkeep of the Conservancy would be possible if the river were used only as a source of water supply, but it is, of course, impossible to consider the river from any one aspect to the exclusion of all others; the weirs, locks and other works have been built up gradually, and the river system must be considered as a whole. We observe that no witness made any suggestion that the expenditure upon up-river weirs and locks should be curtailed; nor is it practicable in our opinion to arrive at a settlement of the problem of contribution by any attempted allocation of the maintenance cost over the beneficiaries by particular works or services.

16. The witnesses of the boating traders contended that a considerable part of the expenditure which the Conservators are defraying out of revenue is capital expenditure for which a loan should be raised, in which view we concur. The Chairman of the Conservators stated that it was their practice to charge appropriate expenditure to capital account, and that of the sum of £291,000, the estimated cost of deferred works, about £120,000 would on that basis be charged to capital; but that they were unable to raise a loan, owing to lack of adequate security, and that expenditure on capital account would therefore in practice be defrayed out of revenue. We hope that, as the result of the present investigation and of the recommendations which we make, the Conservators may find that the security they can offer will be sufficient to enable them to raise a loan, and we call their attention to the fact that the Lee Conservancy Board in similar circumstances have obtained a guarantee under the Trade Facilities Act.

Allocation of  
Expenditure  
to Capital  
Account.

Q. 553;  
688-9;  
752-4;  
1161-8.

(b) *Expenditure on Navigation and Regulation of Water.*

17. The Conservancy expenditure under this head in the year 1921 amounted to £17,425 (see Appendix A), consisting chiefly of wages of lock-keepers, weir-keepers and ferrymen.

(c) *Expenditure on Prevention of Pollution.*

18. The Conservators expended £11,344 in the year 1921 (see Appendix A), on the prevention of pollution, the expenditure consisting chiefly of salaries and wages of preventive staff. The area of the watershed is about 3,600 square miles, and the expenditure appears very reasonable.

19. The witnesses of the Metropolitan Water Board, whilst expressly repudiating any desire to criticise the actual administration of the Conservators and admitting that the purification work which the Conservators perform is of value to the water supply, stated that any expenditure on sewage disposal works for the purpose of purifying sewage beyond the standard recommended by the Royal Commission on Sewage Disposal for the protection of non-drinking water streams was unnecessary, in view of the methods which the Board adopt for the purification of the water after its abstraction from the river; which latter measures were necessary at all times in order to guard against the presence of accidental impurities, however rigid the river supervision.

Criticism by  
the Metro-  
politan  
Water  
Board.

Q. 200;  
267-71;  
147: 148;  
184-5; 203;  
311.

20. Without expressing an opinion on the highly technical questions involved, we consider that no available precaution for securing the purity of the water supply of the Metropolis should be omitted, and we refer to the Report of Lord Balfour's Commission (1893), which urged the need for exercising all possible vigilance to prevent contamination of the flowing water, besides adequate storage and filtration of the water after its abstraction from the river. Whilst recognising that since the date of that Report great advances have been made in the science and methods of water purification, we regard the systematic action of the Conservancy in checking pollution in all parts of the watershed as a valuable first line of defence of the Metropolitan water supply, and no evidence was brought before us which would justify, in our opinion, the relaxation of the precautions adopted by the Thames Conservators.

21. The Water Board witnesses stated that they would be quite prepared to leave the function of safeguarding the river from pollution in the hands of the local and county authorities who are empowered under the general law to deal with this matter throughout the country. We cannot, however, recommend that the Conservancy jurisdiction in this respect should be abolished.

Q. 125-7;  
147: 186;  
201-2; 210;  
305-10.

(d) *Head Office Expenses and General Charges.*

22. During the year 1921 the Conservancy Head Office expenses accounted for £14,944, and the general charges incidental to the undertaking for £11,287 (see Appendix A).

23. The witnesses of the boating traders having called attention to the Report of the Rates Advisory Committee (1920), in which it was stated that the Head Office expenditure of the Conservators appeared to be excessive for the administration of the income which was at their disposal, we took steps to satisfy ourselves on this important point by making a personal inspection at the offices of the Conservancy, in which inquiry we received valuable

Criticism by  
the Boating  
Traders.

Q. 578-688.

assistance from Sir Alfred Woodgate, C.B.E., Director of Establishments at the Ministry of Health. We are indebted to Sir Alfred Woodgate for a memorandum showing the result of his investigation (see Appendix E), in which he states :—

“ In my opinion the Thames Conservancy establishment is well organised, the work is efficiently performed and the rates of pay are certainly reasonable when compared with comparable employment in public departments or under local authorities.”

We fully concur in this expression of opinion.

The general charges incidental to the maintenance of the Conservancy do not appear to call for any comment.

(e) *Interest and Sinking Fund Charges.*

24. For the year 1921 the Conservators had to meet expenditure amounting to £7,468 under this head; if, as a result of the recommendations which we make, they are able to raise a loan for the execution of certain works which are in arrear, further provision will have to be made for interest and sinking fund.

THE THAMES CONSERVANCY REVENUE.

General  
Observa-  
tions.

Q. 954 ;  
1162-3 ;  
1167-8.

25. The Royal Commission on the Prevention of Pollution of Rivers, in their Report on the River Thames (1866), and the Select Committee on Thames River Preservation (1888) indicated the need of the Conservators for an adequate revenue in order to enable them to carry out their statutory duties; and this remains the problem at the present time. As already noticed, attention was called by the Conservancy witnesses to the hampering effect which the lack of an assured income had upon the ability of the Conservators to exercise their borrowing powers, and we regard it as essential that the future income of the Conservators should be both adequate to the needs of the river system they administer and assured to them so as to provide security for the repayment of a loan.

The Annual  
Revenue  
likely to be  
required.

26. For reasons which are set out in Appendix D we have come to the conclusion that an annual revenue of approximately £150,000 is the minimum which should, at the present time, be placed at the disposal of the Conservators; and this amount would only suffice on the assumption that it would be possible for them to raise a loan to defray the capital expenditure which forms part of the estimate for the arrears of work, and that the general cost of labour and materials will fall during the next few years.

27. The revenue of the Conservators in 1921 was approximately £148,000 (see Appendix B), which does not fall far short of the amount which we consider necessary at the present time; it may, therefore, be that the existing revenue will prove sufficient, unless unforeseen requirements arise, and that if any substantial increase of revenue can be obtained, either from existing sources or by drawing upon fresh contributories, it may be possible to effect some reduction in the yield from other sources.

Sources of  
Revenue.

28. The existing sources of revenue may be considered under three heads :—

- (a) Navigation tolls and charges
- (b) Water rents
- (c) Rents, sales of ballast and miscellaneous receipts

and Appendix B shows the revenue derived therefrom during the years 1913-1921 and that estimated for 1922. We propose to examine the income under these heads, before proceeding to consider any additional sources of revenue.

(a) *Navigation Tolls and Charges.*

29. The revenue produced by tolls and charges in the year 1921 amounted to £4,367 in respect of the commercial traffic and £23,011 in respect of the pleasure traffic, making a total of £27,378 (see Appendix B).

Commercial  
Traffic.

30. Evidence was given to the effect that the commercial traffic of the Thames was dwindling to an insignificant amount, and it does not appear to us that there is any prospect of obtaining an appreciable increase of revenue by increasing the tolls and charges on the commercial traffic, the effect of which might be to accelerate its decline.

Pleasure  
Traffic.

Q. 583-4 ;  
590-3 ;  
649-52 ;  
702-4 ; 770 ;  
781 ;

31. The witnesses of the boating traders contended that the registration charges and lock tolls for pleasure boats, as increased in 1920, were so high that the trade was being hampered, but we do not consider that this contention was generally established. The following figures show that there has been an increase in the number of registrations of pleasure boats and launches from 1919 to 1921, notwithstanding the increased charges levied in 1920 :—

*Number of boats, etc., standing registered.*

Year.	...	...	...	...	Skiffs, etc.	Launches.
1919	...	...	...	...	11,845	804
1920	...	...	...	...	12,644	850
1921	...	...	...	...	12,946	904



It must be remembered that the boating trades are very dependent upon climatic and other variable conditions, and whilst we consider that the Conservators should watch this source of income, we do not think that it can be relied upon for any considerable increase.

32. The traders' witnesses generally accepted the view that the charges both for commercial and pleasure traffic should be fixed at the point at which they would produce the maximum revenue, and in our opinion it would be desirable that the Conservators should be placed in a position to vary all the tolls and charges within maxima to be fixed by Parliament, as is already the case in respect to tolls on merchandise traffic; we therefore recommend that in any future legislation the Conservators should be empowered to fix all their charges within statutory limits, so as to produce the maximum revenue, subject to the approval of the charges by the Minister of Transport.

Proposed  
Flexibility  
of Tolls and  
Charges.

Q. 545-6;  
683-5; 769.

#### (b) Water Rents.

33. The Metropolitan Water Board contribution to the Conservancy amounts to £112,500 (*see* Appendix B) under the Thames Conservancy Act, 1921, and the witnesses of the Water Board and of the London County Council contended that this payment was unduly high, in view of the fact that the Conservators have in law no proprietary right in the water of the Thames. None the less, Parliament have from time to time given authority under various statutes for the increase of the contributions of the Metropolitan Water Board and their predecessors, the Metropolitan water companies. In the case of the River Lee, Parliament gave to the trustees of that river in 1850 statutory powers to dispose of the water which was not required for navigation purposes, and sanctioned five years later the vesting by statute of all such surplus water in the predecessors of the Metropolitan Water Board. Though no such specific action of Parliament can be referred to in the case of the River Thames the alternative adopted has had, in our view, the same practical result as regards the relations between the Conservators and the Water Board.

Metropolitan  
Water  
Board.

Q. 135; 323;  
349-51.

34. Several witnesses expressed the view that the Thames gave London a very cheap supply of water. By the courtesy of the British Waterworks Association we are able to append a statement (Appendix O) showing the annual expenditure for water in 1920-21 per head of population in the case of London and several other large cities, from which the following statistics have been abstracted:—

Q. 1578-83;  
1701-2;  
1707; 3083-  
89.

City or Borough.	Population supplied.	Total annual expenditure on water supply.	Annual cost per head of population.
		£	s. d.
London ... ..	6,833,667	4,075,906	11 11
Manchester ... ..	1,121,000	549,833	9 10
Birmingham ... ..	921,861	633,146	13 9
Liverpool ... ..	905,221	480,648	10 0
Glasgow ... ..	1,250,000	417,113	6 8

*Note.*—In reading these statistics regard must always be had to the varying circumstances of each locality and to all the geographical and economic conditions which affect its water supply.

35. We were informed that the Metropolitan water rate is practically equivalent at the present time to a rate of one shilling and eightpence in the pound on the contributory area; and of this amount the existing contribution of £112,500 to the Thames Conservancy represents just under one halfpenny in the pound.

Q. 1947.

36. The total contributions obtained from the South West Suburban Water Company, the West Surrey Water Company and the Woking Gas and Water Company under the Thames Conservancy Act, 1921, amounted to £1,438 in the year 1921 (*see* Appendix B), which is less than 1 per cent. of the total revenue. No appreciable addition to the Conservancy income can therefore be expected from this source.

Other contri-  
butory  
Water Com-  
panies.

#### (c) Rents, Sales of Ballast, and Miscellaneous Receipts.

37. The receipts under this head amounted to £6,323 in 1921 (*see* Appendix B), being just over 4 per cent. of the total revenue. We had evidence that the Conservators have raised the rents on their land by about 200 per cent.; the revenue from sales of ballast is governed by commercial considerations; and the miscellaneous receipts are not susceptible to any general recommendation.

Q. 833; 903

#### POSSIBLE NEW SOURCES OF REVENUE.

38. From the above review of the existing sources of revenue it will be clear that, leaving aside the question of any increase of the contributions of the Metropolitan Water Board and other water companies, no appreciable addition to the Conservancy income can be counted upon from present sources. It was contended by the witnesses of the Metropolitan Water

Board that there were other bodies and persons benefiting by the exercise of the Conservancy functions who should in equity be brought into contribution, namely :

- (a) Undertakers abstracting water for supply purposes who do not at present make any payment to the Conservancy
- (b) Users of water power obtained from the river
- (c) Individual riparian owners and occupiers
- (d) Riparian local authorities.

We propose to examine these four groups, with a view to ascertaining whether, and in what measure, they should be asked to contribute to the Conservancy funds.

(a) *Undertakings abstracting Water from the River.*

Q. 138-46 ;  
290-3.

39. The Water Board witnesses urged that such benefits as they derived from the action of the Conservators in preventing pollution were derived equally by all other undertakings obtaining water from the main stream, its tributaries, or the gravel beds or surface springs in the watershed; and that all such authorities should contribute a proper proportion of the Conservancy funds. The abstraction from gravel beds and surface springs they admitted however to be in a distinct category, and it would be difficult, if not impossible, to determine the extent of any connection between underground sources of supply and the streams over which the Conservancy maintain a standard of purity. We consider, therefore, that contributions could only be looked for among the undertakers who abstract water for supply purposes from the river or its tributaries, and subject to this reservation we accept the contention of the Metropolitan Water Board.

40. Appendix F, which has been compiled from information furnished by the undertakings concerned, shows the quantities of water abstracted from the river and its tributaries in 1921 by the Oxford and Reading Corporations and by the Banbury Water Company, none of which at present make any contribution to the income of the Conservators. The Corporations of Reading and Oxford would, under the scheme of rating which we propound in a later paragraph, contribute substantial amounts to the Conservancy, and in those circumstances we do not consider that any further contribution should be made by them in respect of the abstraction of river water; whilst Banbury is so remote from the main river and its supply of water is comparatively so small that we do not recommend any contribution.

(b) *Water-power Users.*

Q. 46; 132-  
7; 236-64;  
3837; 3838-  
44.

41. The witnesses of the Metropolitan Water Board contended that the regulation of the flow of the water by the Thames Conservancy was largely, if not primarily, for the benefit of the millers obtaining water-power from the river, and that the millers should contribute to the funds of the Conservancy. As regards mills on the main stream a witness of the water-power users pointed out that the property, rights and obligations in respect of all weirs had been transferred from private ownership to the Conservators by the Thames Conservancy Act, 1866; and inasmuch as the prescriptive rights of millers and mill-owners were curtailed by that Act we think that no case arises for contribution to the Conservancy funds. On the tributaries, although any prescriptive water rights remain in the hands of the mill-owners, they do not appear to obtain any substantial advantage from the exercise of the Conservancy powers, and we do not consider that any case for contribution has been made out.

(c) *Individual Riparian Owners and Occupiers.*

Q. 990;  
1731; 1755;  
1760; 1768;  
1777; 1811;  
1815; 1888;  
2380-1;  
2667.

42. The witness who appeared on behalf of the Thames Riparian Owners' and Occupiers' Association, and other witnesses, contended that such benefits as were derived by individual riparian owners and occupiers from the operations of the Conservancy were more than outweighed by the expenses entailed by property on the riverside, and by attendant inconveniences. Although, in the event of the river becoming derelict, riparian owners and occupiers would be the first to suffer inconvenience and expense, we are on the whole prepared to accept the view that no special contribution should be imposed upon them beyond that which they would have to bear under the general scheme of rating which we outline in subsequent paragraphs of our Report.

Q. 2134;  
2511-17;  
2557-60;  
3388-3392;  
3412.

43. Although the interests of navigation are in general directed towards the maintenance of a substantial head of water, whilst those of land drainage are rather to pass off the water as quickly as possible, the work of the Thames Conservancy in dredging channels, cutting weeds, etc., and in the regulation of the flow of water has no doubt an effect upon the efficient drainage of certain lands, particularly by minimising floods. We find that from the source of the river down to Clifton Hampden, below Oxford, and on several tributaries, separate Drainage Boards are in existence which levy rates upon the lands benefited by their operations, and that the occupiers of land within those areas already contribute thus in respect of drainage, a liability which is escaped by the occupiers of land on other reaches of the river which are not scheduled under a Drainage Board. It would, however, be difficult to determine the extent of any benefits under this head derived from the operations of the Conservancy.

(d) *Riparian Local Authorities.*

44. It is apparent that, if any additional revenue is to be obtained from any source other than the water undertakings, it will have to be provided by some form of local rate upon riparian authorities, and we took evidence as to whether any benefits were derived from the operations of the Conservators by the ratepayers in the watershed which might equitably form the basis of a contribution to the Conservancy funds.

45. The upkeep and management of the weirs and locks enhances the value of the river by maintaining adequate levels in the reaches and by regulating the stream, and it can hardly be disputed that if these duties were not performed by the Conservancy considerable efforts might have to be made by riparian local authorities to carry them out. The boating which is so prominent a feature of the Thames depends upon the maintenance of a sufficient depth of water, and benefits also by the dredging, weed cutting, and bank repairs incessantly carried out by the Conservators.

Value of the  
River Works  
etc.

46. The regulation of the flow and the maintenance of adequate channels also tend to reduce the frequency and magnitude of floods, and the witness of the Windsor Corporation testified to good results which had been achieved in this direction.

Q. 2743 ;  
2769.

47. It was suggested by one witness that the advantages of a situation upon the river were natural and therefore not to be regarded as entailing any responsibility for the upkeep of the Conservancy, but it must be borne in mind that the river, if it became derelict, would in all likelihood present features which would detract seriously from its amenities and involve local authorities and others in expenditure.

Q. 1896-7.

48. The extensive work performed throughout the watershed by the Conservators in maintaining the purity and cleanliness of the river is of direct value to the inhabitants of the whole of the river valley, as was acknowledged by several witnesses. From the Report on the River Thames by the Royal Commission on the Prevention of Pollution of Rivers (1866)\* it will be seen how great a nuisance was caused by the state of pollution from which the upper Thames suffered at that time, when the river above Staines was under the control of the Thames Navigation Commissioners, and no Act had yet been passed to preserve its purity. The maintenance of the purity of rivers is recognised by Parliament to be essential, even where they are not to be used for drinking purposes, and to this end the Rivers Pollution Prevention Acts, 1876 and 1893, were placed upon the Statute Book.

Benefits  
from the  
Prevention  
of Pollution.

Q. 1554-6 ;  
1801-6 ;  
2073.

49. A certain amount of flooding of low-lying land is doubtless inevitable, but were it not for the work of the Conservators in the prevention of pollution such floods might be the source of serious nuisance and danger to the public health by the deposit of polluting matter after the falling of the water, whereas the witnesses who dealt with this subject agreed that under existing conditions no such ill effects were to be observed.

Q. 2000-4 ;  
2233-6.

50. The upkeep of the river banks, towpaths, towpath bridges and gates, and ferries in connection therewith involved an annual expenditure averaging £3,445 for the last nine years, as shown by Appendix A. This amount appears to be low for the river mileage involved (about 136 miles) and we think it likely that expenditure in future years will be greater under this head.

The Tow-  
path.

51. The Rates Advisory Committee, in their Report to the Ministry of Transport (1920), suggested that the Conservators should seek by legislation to place the upkeep of the towpath, and the consequent necessity of maintaining the banks of the river, upon the local authorities. The Conservators informed us that they had ascertained that such a proposition would be likely to meet with considerable opposition from the local authorities, and that lengthy investigations would be necessary as to the ownership and measurement of the areas of path and the extent of the various rights in regard to it, before legislation could be attempted; for which reasons they had not found it feasible to give effect to the suggestion in the Bill of 1921. The Thames Conservancy Act, 1921, contained however a clause enabling local authorities voluntarily to enter into agreements with the Conservators and to contribute towards their expenses.

Q. 969 ; 973

Q. 1033-39.

52. We heard considerable evidence on the question whether any riparian contribution could equitably be based upon benefits derived from the upkeep of the towpath system, and whether any part of the burden of maintenance should be placed upon the local authorities.

53. The legal position in regard to the towpath is somewhat intricate. We were informed by the Conservators that there were within their jurisdiction about 136 miles of towpath, which might be grouped approximately under the following heads, according to the ownership of the soil :—

See. 41 et  
seq. of State-  
ment D.I.

	Miles.
Vested in the Conservators by purchase or statute and for which no rent is paid by them	21
Vested in persons or bodies other than the Conservators and in respect of parts of which a rent or other similar acknowledgment is or has been paid	115
Total	136

\* Referred to in Appendix Q.



and that they were not under any obligation to provide towing paths; they had been advised that, whilst the public could not at common law claim as of right to go along the banks of the Thames for the purpose of towing, such a right could be established by long usage, and that having regard to the length of time during which towing had been in operation along the Thames very little evidence would probably be sufficient to support the claim to such a right; the position might be summarised by stating that there existed a site for towing throughout practically the whole length of the navigation, and that towing might take place over that site in some places unconditionally and as of right and in others subject to the payment of an acknowledgment by the Conservators in respect thereof; in one or two instances the towing path was merged in a public road, and there were also many places in which it was probable that, concurrently with the towing right, a pedestrian right of way also existed; and further the towpaths were undoubtedly used in various localities for purposes of recreation as distinct from towing.

- Q. 964. 54. The Conservators stated that no statutory duty was imposed upon them by the Thames Conservancy Act, 1894, to repair any towpath, whether owned by them or not, though Section 62 of that Act empowered them to repair towpaths belonging to them, and they were also entitled at common law to repair towpaths in respect of which there was only an easement for towing, notwithstanding that the soil was not vested in them; and that the owner of the soil over which a right of towing existed was in the absence of any specific contract under no liability to execute any repairs thereto for the purpose of maintaining the site. They informed us that it was their practice to keep in reasonable repair those parts of the towpath which were vested in them, and that with regard to the other parts their policy was to endeavour to obtain financial assistance towards the cost of repairs from the local authority and from the owner of the soil.

- Q. 1675; 1679; 1686; 1693; 1712; 1727. 55. The witness of the Commons and Footpaths Preservation Society urged that the towpaths were of great benefit to the public, that every effort should be made to preserve and improve them, and that the local authorities should contribute thereto, whilst the Conservators should seek to obtain an unconditional right of way over such portions as were held to be only available to the public when actually engaged in towing. Other witnesses, however, stated that the towpath was of little or no value, and we had evidence that the practice of towing had virtually ceased.

- Q. 472-4; 862; 1559; 1565; 1571; 2174; 2192. 56. We were informed that a certain number of towns had voluntarily undertaken financial obligations in respect of the upkeep of portions of the towpath in the nature of riverside promenades, and we had evidence that the Conservators were finding it possible to enter into joint arrangements with local authorities and land owners in regard to the upkeep of other stretches of towpath. If it continues to be possible to make agreements on this basis we regard this procedure as more satisfactory than would be an attempt to define the legal obligations for maintenance; and we consider also that such general benefit as may be derived from the upkeep of the towpaths, towpath bridges, ferries, etc., would be covered by the contribution which we suggest in a subsequent portion of our Report should be obtained from riparian local authorities.

- River Police Duties, etc. 57. The Conservators, besides maintaining a register of pleasure craft by means of which boats using the river can be identified, make bye-laws and appoint water bailiffs for protecting, preserving and regulating the fisheries, and bye-laws for the maintenance of good order on the river; and their officers patrol the stream and enforce these bye-laws, particularly where regattas or races attract the presence of large crowds. The performance of some of these duties by the Conservators relieves the local authorities from duties of a similar nature which might otherwise devolve upon them.

- Value of the Commercial Navigation. 58. The advantage which was derived, in times past, by riverside towns from the existence of the commercial navigation of the Thames is now rapidly dwindling, since the commercial navigation is falling into disuse. At one time there was undoubtedly competition between the waterway and the railway companies, and towns upon the river benefited to the extent of lower railway rates. We do not think, however, that this consideration could now be taken into account.

- Comparison with a Highway. 59. A witness was of the opinion that, inasmuch as the River Thames was a highway, and the upkeep of a road was the responsibility of the local authorities along its route, the maintenance of the river should similarly be placed upon the broad basis of the rates. Whilst we are not able to accept this argument in its entirety we consider that, apart from the question of any advantages which riparian districts may enjoy, there is force in the contention that riparian districts have some liability for the maintenance of the river.

- Contentions of the Local Authorities. 60. Whilst several witnesses, including those of local authorities,\* testified to the value of the Thames and of the work of the Conservators, we were surprised to hear that a number of others were not prepared to admit that the river brought them any advantage. The Maidenhead witness, for example, contended that the borough lost rather than gained by the influx of visitors, and referred to the re-building of Boulter's Lock as not adding to the amenities of the district, inasmuch as the time occupied in the passage of the lock, which he considered was one of its attractions, had been considerably lessened. An Oxford witness was of opinion that Oxford was of more benefit to the river than was the river to Oxford; and a Reading witness went so far as to say that he did not think the town would be seriously prejudiced if the river were reduced to a mere trickle. We fully recognise that the riverside towns have features of interest quite apart from the River Thames, but we think that many of the witnesses unduly minimised advantages to which visitors, and those who cater for them,

\* Q. 613-4; 1594-6; 1605; 1639; 1843; 2035; 2056-8; 2069-73; 2189; 2600-1; 2657-60; 2664.



attach considerable importance. We regard it as incontestable that the Thames, well managed as it is by the Conservators, is a substantial trade asset to the towns and villages where there are good facilities for boating and recreation.

61. All the local authorities' witnesses who admitted that the work of the Conservators was of benefit to the riverside inhabitants contended that such benefit as was derived was actually paid for by compliance with the Conservancy requirements in respect of drainage works and pollution generally, which they considered more exacting than would be the case if the river were not used for drinking purposes.

62. On carefully considering the evidence, we are unable to accept this view of the position. We are satisfied that there are cases where, in consequence of the requirements of the Conservators, especially in regard to the omission of storm overflows from sewers, particular localities have had to incur expenditure for dealing with sewage in excess of that which they would have had to incur, if they had not been within the jurisdiction of the Conservators. We are, however, unable to accept the view that the localities in the Thames Valley have, in the whole, been penalised financially owing to the existence of any exceptional conservancy requirement. Even if the contention put forward by the local authorities' witnesses could be established in the case of the Thames Valley districts generally it would not be right to attribute the whole of the extra expenditure to the water consumers of London. As we have already pointed out, the protection of the water from pollution is also of value to residents along the river and to those who use the river.

63. We are supported in this view of the matter by particulars which have been supplied to us. The County Council of Buckinghamshire, submitted a Table setting out the expenditure incurred in the disposal of sewage by urban and rural districts within the county under three heads:—

Higher Rate of Expenditure on Sewage Disposal claimed to out-weigh any Advantages.

Q. 917; 991; 1589-90; 1593; 1610; 1770; 1777; 1822; 1892-4; 2599; 2660.

Statement L.H.W.2.

- (a) Riparian districts;
- (b) Non-riparian districts wholly or partly within the Thames watershed;
- (c) Non-riparian districts outside the Thames watershed.

A comparison of the amounts of expenditure incurred gives in this instance the following result:—

*Loans raised for Sewage Disposal purposes per 1,000 of population, in Buckinghamshire.*

	£
(a) Riparian districts ... ..	1,653
(b) Non-riparian districts wholly or partly within the Thames watershed	2,366
(c) Districts outside the Thames watershed ... ..	1,734

*Annual cost of upkeep of Sewage Works per 1,000 of population, in Buckinghamshire.*

	£
(a) Riparian districts ... ..	35
(b) Non-riparian districts wholly or partly within the Thames watershed	137
(c) Districts outside the Thames watershed ... ..	91

64. Comparisons between towns of approximately equal populations are not, of course, conclusive, since local conditions of all kinds have to be taken into account; such comparisons as we have been able to make do not, however, lead to the conclusion that the Thames-side towns have suffered financially in this matter as against other towns of similar size.

**PROPOSED CONTRIBUTIONS FROM RIPARIAN AUTHORITIES.**

65. We consider that it is but equitable that the advantages which riparian districts derive from the operations of the Conservancy should form the basis of some contribution to the Conservancy funds. The methods which suggest themselves for the purpose of obtaining such contributions are:—

- (a) A rate on riparian counties and county boroughs;
- (b) A rate on riparian urban and rural districts or parishes.

*(a) Counties and County Boroughs.*

66. Of these alternatives the proposal to obtain contributions by means of a county rate levied throughout the watershed has certain advantages, and we received from the Middlesex County Council a copy of a Resolution in support of the general principle of a county rate which they had passed at a meeting on the 29th of June, 1922, the Resolution being as follows:—

“It was Resolved:

That the County Council, recognising that the Thames and Lee Conservancies cannot properly discharge their duties unless an adequate income is at their disposal, is of opinion that if and when, upon the cessation of the present increased contribution by the Metropolitan Water Board and after a revision of the amount of the contribution by the Metropolitan Water Board, together with the other sources of income, the then total income is insufficient to enable the two Conservancies to properly discharge their duties, any deficit should be made up wholly or in part by a rate levied over the administrative areas of the riparian counties and county boroughs, including London, and expresses its willingness to be so rated provided that all the riparian counties and county boroughs, including London, are similarly rated.”

Statement E.S.W.H.1.

67. On the other hand a county rate would have the great disadvantage of bringing into contribution a very large area remote from the main stream, which practically only benefits from the Conservancy functions in the prevention of pollution. The River Thames above the first weir and lock at Lechlade and the tributary streams are in a natural state, and the Conservators do not expend upon them any funds except those allocated for the prevention of pollution.

68. In these circumstances the contributions to be obtained from county authorities should, in our view, be limited to such expenditure as they may reasonably be held to have escaped owing to the exercise of the Conservancy powers for the prevention of pollution.

69. We have obtained particulars of the expenditure incurred by the West Riding of Yorkshire Rivers Board, the Mersey and Irwell Joint Committee and the Ribble Joint Committee during four representative years, 1912, 1913, 1920 and 1921, and of the contributions which have been made by the authorities represented upon them (*see Appendix P*) from which we note that the expenditure of the county councils and county boroughs concerned is considerable, the Lancashire County Council, for example, in the year 1921 contributing £2,576 to the Mersey and Irwell Joint Committee and £2,817 to the Ribble Joint Committee; and the West Riding County Council contributing £8,160 to the West Riding of Yorkshire Rivers Board during the same year.

70. We recognise that the conditions in industrial areas are very different to those obtaining in the Thames Valley, and we suggest that a sum of £2,500 might be provided by the county authorities and county boroughs in the Thames Valley, which sum would only amount to about one quarter of the present cost of the services in this respect which are performed by the Conservators; this total contribution might be apportioned by taking into account the rateable value of the counties and county boroughs and the extent to which they are within the jurisdiction of the Conservators.

Statement  
E.S.W.H.2.

71. The Middlesex County Council submitted a statement in which they pointed out that they had obtained special Acts amplifying the Rivers Pollution Prevention Acts, and that they had enforced the provisions of those Acts within the county of Middlesex, but we are informed that the County Council do not spend money in watching over those portions of their area which lie within the jurisdiction of the Thames Conservators.

*(b) Boroughs and Urban and Rural Districts or Parishes.*

72. Since, in our opinion, the contributions from the county areas as a whole should be limited as described in the preceding paragraphs, it is necessary to take, as the area on which a general charge might reasonably be placed, the districts more nearly adjacent to the river. We consider that the most suitable units would be the boroughs and urban and rural districts. It is clear, however, that the advantages discussed in paragraphs 44 to 58 do not accrue uniformly to all districts, the more populous districts being benefited to a far greater degree than those which are more purely rural. In so far, however, as the Thames is a pleasure river, all districts abutting upon it benefit to some extent, and by basing the contribution upon the product of a uniform rate, the amount contributed will generally approximate to the benefits received, since the more populous districts with higher assessable values are those in which the greater benefits are received. We suggest also that those rural parishes which do not at any point touch the river should be omitted from the contributory area. The evidence given before us showed that the pleasure use of the Thames hardly extends beyond Oxford, and we recommend therefore that a contribution, the product of a uniform rate, should be made by all riparian county boroughs, boroughs, urban districts and rural parishes from and including Oxford to the lower boundary of the Conservators' jurisdiction.

Q. 700 ;  
2120 ; 2563.

73. We further recommend that the limit imposed should be that of a penny rate; if this figure is adopted, the ratepayers from Oxford to Teddington will be paying towards the upkeep of the Conservancy about twice the rate per pound of rateable value which is contributed by the water consumers of London. We do not consider that any higher proportionate payment would be reasonable; and in this connection we refer again to the Resolution of the Middlesex County Council, which suggested that the equitable basis would be a uniform rate for the whole watershed, including London.

74. On the information at our disposal we estimate that the produce of the proposed riparian rate would be about £12,000 which, together with the suggested contribution of £2,500 from the county councils and county boroughs in respect of the prevention of pollution, would provide about £14,500 annually. It is to be noted, however, that the relief which this additional revenue would bring to the London water consumer would work out to less than one-sixteenth of a penny in the pound of rateable value.

75. Whilst we feel obliged, therefore, on the evidence before us, to agree with the general contention of the Metropolitan Water Board that the London water consumers ought not in equity to bear so large a proportion of the cost of the Thames Conservancy, while ratepayers in districts which unquestionably benefit from the work of the Conservators escape with no payment at all, we are also impressed with the practical difficulty that the contribution which can reasonably be asked from the other districts will in fact afford little actual relief to the London water consumer.

76. The witness who represented the Kingston Corporation and the Urban District Councils of Hampton, East and West Molesey, Esher and The Dittons, Ham, Surbiton,

Sunbury and Teddington, which are within the contributory area of the Metropolitan Water Board, contended that in the event of a general rate being imposed upon riparian localities, those which are within the area of the Metropolitan Water Board should receive special consideration in respect of the contribution which they already make to the Conservancy funds as consumers of water supplied by the Water Board, and urged that they should be relieved of the direct rate to a corresponding extent.

A similar contention would no doubt be put forward by riparian districts within the area of supply of the South-West Suburban and West Surrey Water Companies, and in all the circumstances we consider that it would hardly be practicable to differentiate in the incidence of the proposed general rate.

The Case of  
Riparian  
Districts  
within the  
Water Board  
Area.

Q. 2017-21 ;  
2046 ;  
2059-67.

#### MISCELLANEOUS RECOMMENDATIONS.

77. The Conservancy witnesses pointed out that during the serious drought of 1921 they were pressed by the Metropolitan Water Board to allow the Board to take more water from the river than they were permitted to take under the Thames Conservancy Act, 1911, and that the Conservators thereupon approached the Minister of Health and the Minister of Transport, who agreed in the exceptional circumstances to a temporary reduction in the statutory flow of water remaining in the river. In view of the fact that no specific statutory authority for such action exists we suggest that consideration should be given by Parliament, on the next occasion of a Conservancy Bill, to the desirability of providing the Minister of Health and the Minister of Transport with joint discretionary powers, to be exercised in consultation with the Conservators, to relax temporarily the restrictions of the Act of 1911 in favour of the Metropolitan Water Board, in the event of a serious emergency arising to threaten the water supply of the Metropolis.

The Restrictions on the  
Abstraction of Water by  
the Metropolitan  
Water  
Board.

Q. 1010-16 ;  
1257-8.

78. In Section 90 of the Thames Conservancy Act, 1894, which conferred upon the Conservators extended powers for the prevention of pollution, no mention was made of certain counties, such as Northamptonshire and East and West Sussex, and as a result small areas, although within the natural watershed, are excluded from this jurisdiction. In the case of the left bank of the Chervell, for example, the Metropolitan Water Board witnesses gave evidence to the effect that the absence of Conservancy powers over that portion situated in Northamptonshire militated against the standard of purity which could be obtained in the river, and the Thames Conservancy witnesses agreed that difficulties had been experienced in regard to pollution emanating from that quarter. Though no such difficulties appear to have arisen in other cases, we consider that the omission of small areas, which are within the natural watershed, from the Conservancy jurisdiction is illogical and, on the evidence given, undesirable, and we suggest that when an opportunity occurs the Act should be amended so as to bring the whole watershed within the scope of the Conservators' powers for the prevention of pollution.

Proposed  
Inclusion of  
certain Areas  
within the  
Purification  
Zone of the  
Conservators.

Q. 272-3 ;  
905-6.

79. The witnesses of the Metropolitan Water Board contended that the representation of that authority upon the Thames Conservancy was inadequate, having regard to the amount of revenue which it provided; and it must be noted that the Water Board, with only two representatives, provided 76 per cent. of the Conservancy revenue in the year 1921 (see Appendix B), and nearly 69 per cent. on an average from 1913 to 1920 (see Appendix M). In view, however, of the scope of our Inquiry, we did not call evidence upon this question.

Representa-  
tion on the  
Conser-  
vancy.

Q. 77-82.

80. The boating traders' witnesses contended that the pleasure traders should be represented upon the Conservancy, and since the pleasure traffic contributed 15 per cent. of the revenue, as against 5 per cent. contributed by the commercial traffic, taking an average over the years 1913-20 (see Appendix M), we consider that it would be equitable for one of the two nominations of the Ministry of Transport to be made after consultation with the boating traders.

Q. 579 : 716-8 ; 783-90.

#### PART II.—THE LEE CONSERVANCY.

81. Our Inquiry into the circumstances of the Lee Conservancy Board followed very closely the lines of that dealing with the Thames Conservancy; the duties of the two bodies are similar, and the contentions of the Metropolitan Water Board and local authorities cover practically the same ground; so that we propose to confine our remarks to the points in regard to which the Lee requires special consideration.

General  
Observa-  
tions.

#### THE LEE CONSERVANCY EXPENDITURE.

82. The Conservancy expenditure may conveniently be considered under the following heads :—

- (a) Maintenance of the river works, dredging, etc.
- (b) Navigation and regulation of water
- (c) Prevention of pollution
- (d) Head office expenses and general charges
- (e) Interest and sinking fund on loans
- (f) Expenditure on the Stort Navigation

and Appendix G shows the details of the expenditure for the years 1912-13 to 1921-22. Average figures over that period will be found in Appendix L.

Appendix J shows the expenditure and receipts on capital account, in the case of both the Lee and Stort Navigations.

Criticism by  
the Water  
Board.

83. The Metropolitan Water Board complained that the Lee Conservators were carrying out the reconstruction of the Lee and Stort Navigations at the expense of the London water consumer, who would derive no benefit therefrom.

Q. 1388-95;  
1443-7.

84. In the case of the Lee, the Chairman of the Conservancy Board informed us that the reconstruction of the locks would allow the passage of 100-ton barges up to Ware and Hertford, and that improvements had in the past been carried out which involved in the same way the utilisation of the contributions of the Water Board or Water Companies. The reconstruction of the locks cannot be regarded as in any way for the benefit of the Metropolitan Water Board, but owing to the circumstance that practically no additional revenue can be raised from other sources the Water Board contribution has to meet this new charge; and we consider that the Water Board objection to this procedure is well founded. In the event of additional revenue being obtainable from the navigation tolls and charges in later years, we think that the Water Board would have a strong case for the proportionate reduction of their contributions.

Q. 3219-25.  
Sect. 60-63  
of Statement  
E.B.B.1.

85. The proposal to reconstruct the locks on the Lee Navigation was discussed by the Joint Select Committee on the 1921 Bill, who approved an increase in the borrowing powers of the Conservators; Section 14 of the Lee Conservancy Act, 1921, authorised them to borrow up to £200,000 for the general purposes of their undertaking, which included the proposed reconstruction programme. The Conservators informed us that they had obtained a loan of £100,000, guaranteed as to interest and principal by the Government under the Trade Facilities Act, for the purpose of carrying out the work, and that it was in hand. It would not serve any useful purpose to discuss at this late stage the merits of any objection to the scheme of reconstruction, and provision must be made for sufficient income to meet existing liabilities under this head.

Statement  
S.M.1.

Q. 3169-79.  
Sect. 38-59  
of Statement  
E.B.B.1.

86. In the case of the Stort Navigation the Conservators informed us that before it was taken over, in 1911, it was virtually derelict, and that the local authorities whose areas border the river made repeated applications to the Conservancy Board that they should take it over, a conference being eventually convened, in 1909, of such local authorities and other interested parties, including the Metropolitan Water Board, barge owners and traders, in which the opinion was expressed that every effort should be made to preserve the navigation for the conveyance of traffic and to facilitate the development of the surrounding districts. The local authorities concerned were prepared to assist financially; the Hertfordshire and Essex County Councils and the Rural District Councils of Stanstead and Epping agreed to take over and maintain certain of the bridges for which the Navigation Company had previously been responsible; whilst the Metropolitan Water Board agreed to contribute the sum of £500.

87. On several occasions the Conservators applied to the Treasury for financial assistance towards the reconstruction of the Stort, and the following table shows the extent of the advances received through the Development Commissioners:—

	£
First advance (1912) ... ..	12,500
Second advance (1915) ... ..	5,000
Third advance (not yet paid) ... ..	2,000
	<hr/> 19,500

The Conservators have also expended on the Stort from Revenue	
account ... ..	£25,822

Sect. 17 of  
Statement  
W.B.K.1.

88. The Stort was stated to be navigable to within about 2 miles from Bishops Stortford, and the Conservators anticipated that the reconstruction would be completed within about 12 months.

89. Having regard to the attitude of the local authorities and Metropolitan Water Board, as indicated above, it appears that the Conservators were justified in undertaking the reconstruction of the Stort Navigation out of the funds at their disposal, including those provided by the Metropolitan Water Board; and we consider that in any case the advanced state of the reconstruction scheme makes it necessary that sufficient funds should be made available to allow of its completion.

#### (a) Maintenance Expenditure.

90. The expenditure incurred on the maintenance of the navigation and river works amounted to £12,508 in 1921-22 (see Appendix G), the average for the years 1913-14 to 1920-21 being £7,720 (see Appendix L).

Q. 1392;  
1462-5.

91. The Metropolitan Water Board witnesses pointed out that the proportion of the expenditure of the Conservators on works below the lowest weirs affecting the intakes, that is to say on works which were of no benefit to the water supply, was considerable.

#### (b) Expenditure on Navigation and Regulation of Water.

92. These services accounted for £5,775 in the year 1921-22 (see Appendix G).



(c) *Expenditure on Prevention of Pollution.*

93. The expenditure under this head is, under the Lee Conservancy Act, 1921, subject to a maximum of £4,000, and the Metropolitan Water Board, who have to provide the necessary funds apart from their general contribution, are in a position to criticise the estimate before it is incurred. In 1921-22 the Conservators expended £2,882 on this service (see Appendix G). Q. 3153-5 ;  
3180.

94. Under Section 9 of the Rivers Pollution Prevention Act, 1876, the Lee Conservancy Board are the sole authority for the prevention of pollution within the watershed to the exclusion of the local authorities; in every other respect, however, the situation is similar to that on the Thames, and the contentions of the Metropolitan Water Board followed the same lines; their witnesses stated that they did not regard the expenditure of the Conservancy under this head as extravagant, and that they recognised that the Conservators were of benefit to the Water Board in exercising a check upon pollution in the neighbourhood of the intakes, which check they wished to see maintained in the future. This provides, in the case of the Lee, an additional argument against any proposal to transfer the Conservancy purification powers to the local authorities. Q. 1474-7 ;  
1467-72 ;  
1487 ;  
1504-6.

(d) *Head and other Office Expenses and General Charges.*

95. In the year 1921-22, the Conservators incurred expenditure amounting to £3,862 for office expenses, and £7,153 for general charges incidental to the work of the Conservancy (see Appendix G).

(e) *Interest and Sinking Fund on Loans.*

96. The expenditure on the service of loans amounted to £8,684 during 1921-22 (see Appendix G); and provision will be necessary in future for any additional capital expenditure incurred.

(f) *Stort Navigation Expenditure.*

97. This item accounted for £646 in the year 1921-22 (see Appendix G), against which an income of £93 was obtained (see Appendix H).

## THE LEE CONSERVANCY REVENUE.

98. As in the case of the Thames, we are of opinion that the income of the Lee Conservators should be both adequate to the needs of the river system they administer and assured to them so as to provide security for the repayment of loans. General Ob-  
servations.

99. It was our intention to make some suggestions as to the income which should in future be placed at the disposal of the Lee Conservancy Board, as we have been able to do in the case of the Thames, and we approached the Lee Conservancy Board with this object in view; the Board, however, did not see their way to furnish the information which we considered necessary to an adequate consideration of the future requirements of their undertaking, as will be seen from the copies of letters exchanged which are printed in Appendix K. This question will in any case fall to be determined at the close of the period fixed in the Lee Conservancy Act, 1921, or of such additional period as may be added thereto by joint order of the two Ministers, and we think it desirable to call attention to the chief points which, in our view, may require further elucidation. The Annual  
Revenue  
likely to be  
required.

100. The Conservators submitted an estimate of income and expenditure for the years 1922-1931 (Appendix K, Table W.B.K. 7), which the Board's auditor stated had been prepared in connection with the 1921 Bill. This estimate (col. 11), shows capital expenditure during that period totalling £226,599; of which we were informed by the auditor that about £100,000 was likely to be spent within the year 1922 on the reconstruction of the locks on the Lee Navigation. It appears also that about £12,250 is likely to be spent during the years 1922 and 1923 on the completion of the reconstruction of the Stort Navigation. Deducting these two amounts from the total, there remains estimated capital expenditure to the extent of about £114,000 during the years 1923 to 1930, which appears to call for some explanation. Q. 3260-2.  
  
Q. 3287-90.  
  
Sect. 54 of  
Statement  
E.B.T.1.

101. Over and above such capital expenditure the Conservators estimate (col. 9 of Table W.B.K. 7) that arrears of maintenance and special renewals to the extent of £51,787 will have to be made good out of revenue in the years 1922 to 1930, including the amounts shown as chargeable to Suspense Account in 1922 and 1923. We have no information to enable us to form an opinion upon this programme.

102. The sources of revenue at present available to the Conservators may be grouped as follows:— Sources of  
Revenue.

- (a) Tolls and charges on the navigation
- (b) Contributions from the Metropolitan Water Board, and miscellaneous water rents
- (c) Rents and miscellaneous receipts.

Appendix H shows the revenue derived from these sources during the years 1912-13 to 1921-1922. Average figures over the same period will be found in Appendix M.

## (a) Navigation Tolls and Charges.

103. In 1921-22 the revenue from this source amounted to £10,645, of which commercial traffic provided £10,547, and pleasure traffic, which is negligible, only £98 (*see* Appendix H).

Q. 1396 ;  
3129 ; 3132 ;  
3238. 104. The Water Board did not comment upon the amounts of the commercial tolls and charges, whilst the Chairman of the Conservancy Board stated that they were to a certain extent experimental, and, in his personal opinion, rather on the high side.

105. The Conservators have, under Section 4 of the Lee Conservancy Act, 1921, maximum charging powers, and we consider that the tolls and charges should be maintained, as in the case of the Thames, at such a level as will, in the opinion of the Conservancy Board, yield the maximum possible revenue.

106. The tonnage of merchandise carried on the navigation in recent years is as follows :—

	Tons.		Tons.
1912-13 ... ..	573,591	1917-18 ... ..	594,308
1913-14 ... ..	661,370	1918-19 ... ..	456,272
1914-15 ... ..	617,890	1919-20 ... ..	531,563
1915-16 ... ..	708,048	1920-21 ... ..	511,526
1916-17 ... ..	742,090	1921-22 ... ..	393,734

The Bow  
River and  
Bow Back  
River.

107. Whilst we are not of opinion that any considerable increase in the revenue can be expected from the commercial traffic, at any rate in the immediate future, we have been impressed with the anomaly that a substantial stretch of the Lee Navigation, where the density of traffic is very great, does not yield the Conservators any revenue by tolls. We refer to the Bow River, just over  $1\frac{1}{2}$  miles in length, which extends from Old Ford Lock down to the junction of the Limehouse Cut with Bow Creek. The Bow River and the Bow Back River, which is a short branch about  $\frac{1}{2}$  mile long leading from Bow Bridge to Marsh Gate Lock and giving access to the backwaters, have been toll-free from time immemorial, and when it was proposed, in the Lee Navigation Improvement Bill of 1850, to erect a tidal lock at Bow, Parliament inserted a provision (Section 45 of the Lee Navigation Improvement Act, 1850), that no tolls should ever be levied upon the navigation between Old Ford and Bow Creek.

108. In 1868, and again in 1921, the Lee Trustees and their successors, the Conservators, endeavoured, unsuccessfully, to obtain a clause permitting the imposition of tolls upon these reaches.

109. The Bow River forms a very important link in the navigation, in which the Conservators are in their own interests obliged to maintain a depth sufficient to permit the passage of the craft that can be accommodated in the other reaches ; its freedom from tolls involves therefore a corresponding increase of the financial burden upon the Metropolitan Water Board, who have to provide sufficient funds to balance the Conservancy expenditure and revenue.

110. We recommend to the favourable consideration of Parliament, on the next occasion of appropriate legislation, the proposal that tolls should be levied on these reaches, subject to the acceptance by the Conservators of any additional liability for their maintenance which might be considered reasonable, having regard to the additional revenue which would be placed at their disposal.

## (b) Water Rents.

111. The income derived from water rents in 1921-22 was £22,477, of which the Metropolitan Water Board provided nearly the whole, namely £17,000 (general contribution) and £3,500 (prevention of pollution) ; the increased contributions authorized by the 1921 Act only affected nine months of that financial year. £1,977 was obtained from miscellaneous charges for the use of water for cooling purposes, etc. (*see* Appendix H).

Metropo-  
litan Water  
Board Con-  
tributions.

112. The Metropolitan Water Board are the only undertaking drawing water from the Lee for supply purposes, and they abstract a very large proportion of the flow. Appendix N shows the quantities drawn by the Metropolitan Water Board from the Thames and Lee respectively, during the years 1911 to 1921. Taking the years 1912 to 1919, during which the payments were unchanged in both cases, the average cost per million gallons to the Metropolitan Water Board will be found to be 14s. 7d. in the case of the Thames and 8s. 10d. in that of the Lee. These figures are based solely upon the statutory contributions paid by the Water Board to the two Conservancies.

Q. 1376-79 ;  
2790-1 ;  
2833-41 ;  
3216-8.

113. The witnesses of the Water Board referred to the River Lee Water Act, 1855, as a bargain by which all surplus water of the Lee was sold to them for a consideration which should not now be disturbed, in which contention they were supported by the witnesses of the London County Council. The Lee Conservancy witnesses on the other hand referred to the increases in the water rents which were subsequently sanctioned by Parliament.

Q. 1415-24 ;  
1520.

114. It must be borne in mind that the Metropolitan Water Board have incurred other financial liabilities in respect of the abstraction of Lee water, beside the payments to the Conservators under the Acts quoted above. The Water Board succeeded to liabilities of the New River Company and the East London Waterworks Company which have involved them in payments to the Borough of Hertford amounting to about £36,000, and £600 yearly in perpetuity, in respect of the disposal of the Hertford sewage, and in an annual payment to the Conservancy of approximately £900 for the dredging of silt at the mouth of the intercepting

drain originally constructed by the East London Company to divert the sewage effluents of Q. 3184-5. Ponders End, Edmonton and Tottenham, to a point on the Lee below Tottenham.

115. In all the circumstances, however, we do not consider that the contribution at present paid to the Lee Conservancy by the Metropolitan Water Board (which at the full amount of £24,000 a year is only equivalent to a rate of about one-tenth of a penny in the pound on the rateable value of the Water Board contributory area), is an excessive burden upon the water consumer, quite apart from the question of seeking a more equitable basis for the Conservancy revenue.

(c) *Rents and miscellaneous Receipts.*

116. Miscellaneous sources of revenue, which are similar to those of the Thames Conservators, yielded an income of £5,346 in 1921-22 (see Appendix H), and it does not appear that any of these can be dealt with by general recommendation.

POSSIBLE NEW SOURCES OF REVENUE.

117. We have indicated the Bow River as a possible source of additional revenue, and as there are no undertakers drawing water from the river for supply purposes who could be brought into contribution the problem of providing fresh sources of income resolves itself into the question whether any contribution should, as in the case of the Thames, be obtained from the ratepayers within the watershed.

*Riparian Local Authorities.*

118. We were, however, impressed with the fact that there is, in the case of the Lee Navigation, no attraction in any way comparable to that of the river Thames, and practically no pleasure traffic. The Lee Navigation is mainly an artificial channel, separate from the old bed of the river, as was brought out in the evidence of the Chairman of the Lee Valley Drainage Commissioners; its important part is almost entirely commercial and industrial in character, and the towpath which follows its banks is used for its original purpose. The benefits which the Lee Conservancy confers upon riparian districts are therefore practically confined to two heads, the prevention of pollution, and the maintenance of the commercial navigation, as distinct, for the greater part of the route, from the old river bed.

119. The prevention of pollution, as in the case of any other river, is an incontestable advantage to everyone using the river or residing near it, but we had evidence that a good deal of inconvenience was suffered by riparian inhabitants in the lower reaches owing to the presence of pollution in the main stream and backwaters. Witnesses of the London County Council, the Corporation of West Ham, and the Metropolitan Borough Councils of Hackney, Poplar, and Stepney gave evidence to that effect, though their main contention was rather that the funds at the disposal of the Conservators might be inadequate, and the penalties which they were able to exact from offending local authorities insufficient.

Q. 3235-37 :  
3770-1.

Q. 3900-1 :  
3927-9.

Benefits  
from the  
Prevention  
of Pollution.

Q. 2864-  
2915 : 2916-  
77 : 3995-  
4003.  
Statement  
R.H.R.T.I.

120. The Conservancy witnesses informed us that in 1882 the Conservancy Board prepared a scheme for the diversion to Barking of the sewage from the whole of the Lee Valley, which scheme did not attract sufficient support to enable them to proceed with it; and that after further consideration similar schemes were drawn up in 1902 and 1903, but that the Conservators were advised that it was not within their powers to promote Bills to give legislative sanction to these proposals; and that other proposals of the same nature were also considered and dropped from time to time on account of the heavy cost involved, and lack of combination among the local authorities concerned.

Paras. 31-36  
of Statement  
E.B.B.1.

121. It appears that the Conservators make every endeavour to prevent the pollution of the streams, but that considerable expenditure would be necessary if the lower reaches of the Lee were to be purified. The conditions are therefore quite different from those existing on the River Thames, in this respect.

Q. 2931 ;  
3140 ; 3144-  
52.  
Statements  
E.B.B. 2 & 3.

122. During the years 1913-1920 the commercial traffic provided on an average nearly 46 per cent. of the Lee Conservancy revenue as compared with the average of just over 5 per cent. provided by the commercial traffic on the Thames during the same period (see Appendix M). In the case of the Lee therefore the commercial navigation is more nearly self-supporting.

Value of the  
Commercial  
Navigation.

THE QUESTION OF CONTRIBUTION BY LOCAL AUTHORITIES.

123. In view of the very limited benefits which are derived by the inhabitants of riparian localities from the navigation and the work of the Conservancy Board, and the disadvantages from which they suffer on some of the lower reaches, we do not suggest that any contribution should be made to the Conservancy through the medium of the rates. There would obviously be an arguable case for some contribution by the County authorities who are relieved of expenditure under the general law in respect of the prevention of pollution, but the total cost of these services under the Lee Conservancy Board is much smaller than in the case of the Thames (£2,882 as against £11,344 in 1921), and the rateable value of the county of London, which in the case of the Lee is a riparian county, is so much greater than that of the other

county areas, that the contributions which could equitably be demanded from the county authorities of Middlesex, Herts, Essex and Bedfordshire, and the county borough of West Ham would be very small. There are also the further points, that a much greater percentage of the population subject to the Conservancy jurisdiction on the Lee are consumers of water supplied by the Metropolitan Water Board than is the case upon the Thames, and that the Water Board have perhaps a more immediate interest in the purification of the Lee, owing to the comparative shortness of the waterway and the greater proportion of water which they abstract.

#### MISCELLANEOUS RECOMMENDATIONS.

Proposed  
Amendment  
of Section  
91 of the  
Lee Conser-  
vancy Act,  
1868.

Q. 3512-19 ;  
3527-8 ;  
3532-43 ;  
3555-6 ;  
3566-9 ;  
3574-8.

Q. 3589-93 ;  
3627.

124. The witnesses of the Hertfordshire County Council and of the Borough of Hertford and local authorities in Hertfordshire contended that the prohibition of the opening of outfalls into the rivers contained in Section 93 of the Thames Conservancy Act, 1894, and Section 91 of the Lee Conservancy Act, 1868, was inimical to the public interest, inasmuch as it prevented the proper drainage channel from being utilised and tended to cause difficulties to the Conservators in detecting pollution where means were adopted to dispose of sewage effluents without opening an outfall to the rivers. They urged that the opening of an outfall should not be entirely prohibited, but that it should be allowed subject to the approval of the Minister of Health, and instanced cases where the river was the natural drainage channel of a community at such a distance above the Water Board intakes that no harm could arise to the water supply through the admission of a purified effluent. They stated that the Thames Conservators did not take so rigid a line in regard to the opening of an outfall for a properly purified effluent as did the Lee Conservators, though the tenour of the Acts governing the two rivers is very similar.

125. On the evidence before us we incline to the opinion that an amendment of Section 91 of the Lee Conservancy Act, 1868, is required so as to admit of the opening of an outfall to the river for the discharge of a purified sewage effluent, subject to adequate safeguards.

The Back-  
waters.

Q. 2916-77 ;  
3438-3508. Statements  
G.E.H.1 ;  
E.B.B.3.

126. Complaints of the condition of the backwaters of the River Lee were brought before us by the witnesses of the Corporation of West Ham and the Thames Lighterage Company. These backwaters have been the subject of considerable controversy for many years past, and on the occasion of the promotion of the Lee Conservancy Bill, 1921, the Joint Select Committee of the Houses of Parliament to which the Bill stood referred, after hearing arguments, held that no obligation should be placed on the Lee Conservancy Board to devote any part of their increased revenue to the cleansing of the backwaters.

Q. 3129 ;  
3135-8.

127. The witnesses of the Lee Conservancy Board informed us that they were quite prepared to do what might be possible to alleviate conditions on the backwaters, which they admitted to be bad and growing steadily worse, if sufficient funds could be obtained for that purpose; they stated that the ordinary funds of the Conservancy were fully employed in carrying out their statutory duties, and that they would be depleting the resources of the navigation if they expended money upon the toll-free portions without having any statutory right to obtain remuneration therefrom. The witness of the Corporation of West Ham referred to an annual sum of £1,000 which an undertaking situate upon the backwaters paid to the Conservators for the use of water for condensing purposes, and he was of opinion that the owners of premises on the backwaters would in general be prepared to pay something to the Conservancy if the money so provided could be allocated to the cleansing of their streams; the Chairman of the Conservancy Board welcomed this suggestion and was prepared to pursue it further with the parties concerned. We received, however, a protest on behalf of certain traders and others on the Bow River in opposition to the suggestion of tolls upon that reach.

Q. 2925.

Q. 3139.

Statements  
J. K. & C.1.

128. It would appear to be in the interest of all concerned to co-operate with a view to finding a remedy for the unsatisfactory and unwholesome condition of the backwaters, and we recommend that the question of imposing tolls thereon be considered by Parliament concurrently with that of levying tolls upon the Bow River and Bow Back River (*see* Para. 110, ante).

Representa-  
tion on the  
Conservancy  
Board.

Q. 1360 ;  
1364 ;  
1425-31.

129. As was the case in regard to the Thames Conservancy, the witnesses of the Metropolitan Water Board contended that the representation of that authority upon the Lee Conservancy Board was inadequate, having regard to the large proportion of revenue derived from the Water Board contributions. In the year 1921-22 these contributions formed over 48 per cent. of the total revenue (*see* Appendix H), and on an average for the years 1913-14 to 1920-21 about 30 per cent. (*see* Appendix M), whilst there are only two Conservators appointed by the Water Board. In view, however, of the scope of our Inquiry, we did not call evidence upon this question.

#### SUMMARY OF RECOMMENDATIONS.

The following is a recapitulation of our main findings and recommendations :—

##### THAMES CONSERVANCY.

*Expenditure.*—130. We received no evidence of any wasteful or inappropriate expenditure by the Conservators, and a large number of witnesses expressed appreciation of their



work; we have been impressed with the efficiency, foresight and economy with which the Conservators have carried out their important public duties. (Para. 11.)

131. We think it desirable that a considerable portion of the expenditure which is being incurred on making good arrears of work, and which is properly chargeable to capital account, should be defrayed by the raising of a loan. (Para. 16.)

*Revenue.*—132. We regard it as essential that the income of the Conservators should be adequate and assured to them so as to provide security for the repayment of a loan. (Para. 25.)

133. It is our considered opinion that an annual revenue of approximately £150,000 is the minimum which should, at the present time, be placed at the disposal of the Conservators, and that this amount would only suffice on the assumption that it would be possible for them to raise a loan to defray capital expenditure which forms part of the estimate for the arrears of work, and that the general cost of labour and materials will fall during the next few years. (Para. 26.)

*Existing Sources of Revenue.*—134. We accept the main contention of the Metropolitan Water Board, that the water consumers of the Metropolis should not be called upon to bear so great a share in the cost of the upkeep of the Conservancy, whilst ratepayers in riparian districts who benefit substantially from the work of the Conservators make no contribution to the Conservancy funds. (Para. 75.)

135. We find also that no appreciable addition to the Revenue can be counted upon from existing sources. (Para. 38.)

*Additional Sources of Revenue.*—136. We consider that it is but equitable that the advantages which riparian districts derive from the operations of the Conservancy should form the basis of some contribution to the Conservancy funds. (Para. 65.)

137. We suggest that a sum of £2,500 towards the cost of preventing pollution might be provided by the county authorities and county boroughs in the Thames Valley, who are relieved of expense under this head by the action of the Conservators. (Paras. 66-71.)

138. We recommend also that a contribution should be made by all riparian county boroughs, boroughs, urban districts and rural parishes from and including Oxford to the lower boundary of the Conservators' jurisdiction; such contribution not to exceed the yield of a rate of one penny in the pound on the rateable value. (Paras. 72-76.)

*Miscellaneous.*—139. We suggest that tolls and charges levied in respect of the Navigation should all be subject to statutory maxima, as is already the case in respect to tolls on merchandise traffic; subject to the approval of the charges by the Minister of Transport. (Para. 32.)

140. We recommend that consideration be given by Parliament, on the next occasion of a Conservancy Bill, to the desirability of providing the Minister of Health and the Minister of Transport with joint discretionary powers to relax temporarily the restrictions on the abstraction of water by the Metropolitan Water Board which are contained in the Thames Conservancy Act, 1911, in the event of a serious emergency arising to threaten the water supply of the Metropolis. (Para. 77.)

141. We suggest that when an opportunity occurs Section 90 of the Thames Conservancy Act, 1894, should be amended so as to bring the whole watershed within the scope of the Conservators' powers for the prevention of pollution. (Para. 78.)

142. We consider also that it would be equitable for one of the two nominations of Conservators by the Minister of Transport to be made after consultation with the boating traders. (Para. 80.)

#### LEE CONSERVANCY.

*Expenditure.*—143. We are of opinion that the objection of the Metropolitan Water Board to the reconstruction of the Lee Navigation being undertaken at the charge of their contributions is well founded, and that in the event of additional revenue being obtainable from the tolls and charges on the Navigation in later years the Water Board would have a strong case for the proportionate reduction of their contributions. (Paras. 83-84.)

*Revenue.*—144. As in the case of the Thames Conservancy, we regard it as essential that the income at the disposal of the Lee Conservancy Board should be adequate and stable. (Para. 98.)

145. It has not been possible for us to gauge the requirements of the Conservators without further information, which they have not seen their way to furnish. (Paras. 99-101.)

*Existing Sources of Revenue.*—146. We recommend to the favourable consideration of Parliament, on the next occasion of appropriate legislation, the proposal that tolls should be levied upon the Bow River and Bow Back River. (Paras. 107-110.)

*Miscellaneous.*—147. We incline to the opinion that an amendment of Section 91 of the Lee Conservancy Act, 1868, is required so as to admit of the opening of an outfall for a purified sewage effluent, subject to adequate safeguards. (Paras. 124-125.)

148. It would appear to be in the interests of all concerned to co-operate with a view to finding a remedy for the unsatisfactory and unwholesome condition of the backwaters, and we recommend that the question of imposing tolls thereon be considered by Parliament concurrently with that of levying tolls upon the Bow River and Bow Back River. (Paras. 126-128.)

#### CONCLUSION.

149. We desire to express our appreciation of, and our indebtedness to our Secretary, Mr. Hutt, for the assistance which he has invariably rendered both in the course of our Inquiry and in the preparation of this Report.

(Signed)      NEWTON (*Chairman*).  
                   H. B. BETTERTON.  
                   J. R. BROOKE.  
                   G. HAMMOND    ETHERTON.  
                   R. J. SIMPSON.

JOHN HUTT (*Secretary*).

20th February, 1923.

## APPENDIX A.

Thames Conservancy.—Table of Annual Expenditure. 1913-1922.

	1913.		1914.		1915.		1916.		1917.		1918.		1919.		1920.		1921.		1922. (estimated).	
	£	%	£	%	£	%	£	%	£	%	£	%	£	%	£	%	£	%	£	%
(a) Maintenance of River Works:—																				
Locks Weirs and Repair Yards	7,048	12.64	7,042	11.48	8,577	16.01	4,746	9.71	4,287	8.38	3,738	7.54	9,014	13.78	14,369	16.68	30,180	27.03	33,677	38.22
Dredging	9,088	16.29	10,548	17.87	5,675	10.59	4,911	10.06	3,377	6.40	4,588	8.98	7,168	10.78	4,028	4.62	4,363	3.91	4,925	54.22
Towpains, Banks and Ferries	5,832	6.87	5,063	5.19	2,463	4.60	2,134	4.37	3,766	7.26	3,035	5.98	5,692	8.31	3,488	4.88	3,339	3.04	4,300	2.59
Miscellaneous	1,219	2.18	798	1.28	450	.80	602	1.19	1,566	3.10	2,410	4.67	819	1.25	1,532	1.78	1,670	1.50	1,500	.90
TOTAL	21,187	37.98	21,411	36.27	17,145	32.00	12,393	25.37	13,056	25.48	13,771	26.66	22,109	33.79	29,727	34.52	49,122	44.02	109,732	66.04
(b) Navigation and Regulation of Water.																				
(c) Prevention of Pollution	6,487	11.63	6,556	11.12	6,576	12.27	6,448	13.21	6,661	13.02	6,890	13.34	7,746	11.84	11,387	13.22	11,344	10.17	10,827	6.52
(d) (i) Head Office Expenses	7,850	14.07	8,302	14.07	8,193	15.29	8,501	17.41	8,517	16.65	8,551	16.55	9,376	14.33	14,247	16.54	14,384	13.39	14,008	6.45
(d) (ii) General Charges	4,045	7.25	4,895	8.29	4,987	9.30	4,617	9.45	5,747	11.23	5,689	10.78	6,169	9.43	6,512	7.46	7,468	6.81	7,468	6.49
(e) Service of Loans	8,018	14.38	8,638	14.63	8,889	16.58	8,896	18.03	8,745	17.09	8,635	16.71	8,534	13.07	7,566	8.77	7,468	6.69	7,468	4.49
TOTAL	53,778		59,024		53,585		48,840		51,166		51,551		65,493		86,127		111,590		166,162	

## APPENDIX B.

Thames Conservancy.—Table of Annual Revenue. 1913-1922.

	1913.		1914.		1915.		1916.		1917.		1918.		1919.		1920.		1921.		1922. (estimated).	
	£	%	£	%	£	%	£	%	£	%	£	%	£	%	£	%	£	%	£	%
(a) Tolls and Charges:—																				
Commercial	3,592	6.08	3,562	5.93	2,832	5.12	2,447	4.53	2,378	4.52	2,448	4.66	2,673	4.35	5,178	6.51	4,367	2.96	5,000	9.38
Pleasure	9,710	16.44	9,480	15.78	6,729	12.15	5,644	10.46	5,716	10.86	5,165	9.84	9,153	15.50	20,327	25.53	23,012	15.59	23,900	16.15
TOTAL	13,302	22.52	13,042	21.71	9,561	17.27	8,091	14.99	8,094	15.38	7,613	14.50	11,726	19.85	25,505	32.04	27,379	18.56	28,900	19.53
(b) Water Rents:—																				
Metropolitan Water Board	40,000	67.71	40,000	66.57	40,000	72.25	40,000	74.11	40,000	76.01	40,000	76.22	40,000	67.72	45,000	56.54	112,500	76.30	112,500	76.01
Other	450	.76	600	1.00	500	.90	500	.88	550	1.05	600	1.14	600	1.02	500	.63	1,438	.97	1,400	.95
TOTAL	40,450	68.47	40,600	67.57	40,500	73.15	40,500	75.04	40,550	77.06	40,600	77.36	40,600	68.74	45,500	57.17	113,938	77.17	113,900	76.96
(c) Rents and Miscellaneous																				
	5,322	9.01	6,443	10.72	5,304	9.68	5,383	9.97	3,979	7.56	4,264	8.14	6,737	11.41	8,591	10.79	6,322	4.28	5,200	3.51
GRAND TOTAL	59,074	100.00	60,085	100.00	55,365	100.00	53,974	100.00	52,623	100.00	52,477	100.00	59,063	100.00	79,596	100.00	147,659	100.00	148,000	100.00

## APPENDIX C.

*Thames Conservancy.—Table of Capital Expenditure. 1913-1921.*

—	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
	£	£	£	£	£	£	£	£	£
Looks, Weirs and Lockhouses ...	13,819	8,025	2,006	834	1,190	5	2,231	2,044	1,100
Dredging ... ..	583	713	32	—	—	—	—	—	—
Towpaths and Banks ... ..	953	1,422	987	—	35	35	640	311	24
Plant and Works ... ..	1,277	211	111	112	—	—	295	450	37
Purification Service ... ..	—	57	—	—	—	280	—	600	—
Miscellaneous ... ..	1,012	353	5	642	—	39	—	30	486
TOTAL ... ..	17,644	10,784	871	1,588	1,225	211	3,166	3,435	1,647
Extinction of Debt. (Navigation Commissioners.)	25	—	—	—	40	—	15	—	—
	17,669	10,784	871	1,588	1,185	211	3,181	3,435	1,647

*Table of Capital Receipts. 1913-1921.*

—	£	£	£	£	£	£	£	£
From Loans ... ..	11,500	6,000	—	—	—	—	—	—
Miscellaneous ... ..	85	—	—	45	40	605	15	—
Contributions from Revenue ...	2,470	1,156	1,009	139	—	—	3,116	2,129
	14,055	7,156	1,009	184	40	605	3,181	2,129
								727

## APPENDIX D.

## MEMORANDUM ON THE ANNUAL REVENUE LIKELY TO BE REQUIRED BY THE THAMES CONSERVATORS.

The Committee had under consideration a letter from the Conservators, dated 9th January, 1923 (a copy of which is appended).

*Maintenance.*—After making allowance for the factors to which the Conservators call attention in their letter, the Committee reached the conclusion that a sum of approximately £31,750 represented the minimum basic annual cost of maintenance, that is to say, on the assumption of costs of labour and material upon their pre-war general level. The Committee were advised that in the year 1922 these costs might be taken to be approximately 100 per cent. in excess of pre-war, which would bring the annual maintenance cost to about £63,500.

*Arrears of Work.*—Taking into consideration the fact that some of the arrears of work had already been overtaken, and that the greater part of the programme was likely to be executed with falling costs of labour and materials, the Committee were of opinion that the basic cost of all the arrears (£116,400) should be increased by 100 per cent. in order to arrive at a reasonable estimate of the actual expenditure likely to fall upon the Conservators during the five years' currency of their 1921 Act. The estimated total expenditure is, therefore, £232,800.

Of this we understand that approximately £102,000 should properly be charged to capital account, and we recommend that this amount should be raised by means of a loan (see paragraph 16), interest and sinking fund on which over a period of, say, 25 years would absorb about £7,532 per annum.

The balance of £130,800 may be allocated over

the five years' duration of the Act in the form of an annual revenue charge of £26,160.

*Estimated Annual Expenditure.*—The minimum yearly expenditure which the Conservators are likely to have to meet during the currency of the 1921 Act may therefore be approximately estimated as follows:—

—	Basic Figure.	100 per cent. Increase.	Total.
Maintenance ... ..	£ 31,700	£ 31,700 say	£ 63,000
Arrears (Revenue Account; Total Estimate).	£ 130,800		
One-fifth ... ..	26,160	say	26,000
Conservators' Estimates for 1923.			
Prevention of Pollution	10,259	say	10,000
Head Office Expenses	36,605	say	36,000
and General Charges.	27,468		
Service of Loans ...			
Additional to cover £102,000 for 25 years (Estimated).	27,532	say	15,000
			£150,000



## COPY OF RELATIVE CORRESPONDENCE.

1.

6, Whitehall Gardens, S.W.1.

22nd December, 1922.

SIR,

INTER-DEPARTMENTAL COMMITTEE ON THE  
THAMES AND LEE CONSERVANCIES.

The Committee are considering whether it is possible to give in their Report some estimate of the annual income which should be made available for the proper maintenance of the Conservancy, and I am instructed to refer to the evidence given before the Joint Select Committee of the Houses of Parliament regarding the maintenance expenditure for the upkeep of the river works in 1921, and to ask whether the Conservators still consider those estimates as satisfactory in the light of subsequent experience, due allowance being made for the fall in cost of all work.

The Committee would be obliged if the Conservators could submit any observations they have to make on this subject at an early date.

I am, Sir,

Your obedient Servant,

(Sgd.) JOHN HUTT,

Secretary of the Committee.

The Secretary,

Thames Conservancy,

2-3, Norfolk Street, W.C.

2.

Thames Conservancy,

2 &amp; 3, Norfolk Street,

Strand, W.C.2.

9th January, 1923.

SIR,

INTER-DEPARTMENTAL COMMITTEE ON THE  
THAMES AND LEE CONSERVANCIES.

Referring to your letter of the 22nd ultimo, asking, in connection with the evidence given in 1921 before the Joint Select Committee of the Houses of Parliament regarding the maintenance expenditure for the upkeep of river works, whether the Conservators still consider those estimates as satisfactory in the light of subsequent experience, I have been desired to submit the following observations for the assistance of the Inter-Departmental Committee.

Before dealing with the present and future aspect of the matter it is perhaps desirable to recapitulate shortly, in the first instance, the total expenditure which, upon the basis of the above-mentioned estimates, would have resulted from a seven years Act as originally intended. These were as follows:—

	£
Total estimated cost of arrears of upkeep	291,000
Required for annual maintenance of the river, £50,000 per annum, for seven years =	350,000
Required for establishment and other working expenses and service of debts, £80,800, for seven years =	425,600
Total ...	£1,066,600

By the reduction of the duration of the Act from seven to five years the expenditure on the above basis during those five years would amount to £846,000.

The estimated maximum total annual revenue under the Act was £148,500, which, on the basis of five years duration, would amount to £742,500, leaving a deficit, as compared with the estimated expenditure for that period of £102,500.

Since the passing of the Act, certain of the above-mentioned arrears of works have been carried out, and in the case of Goring Lock and certain other works it was found that the anticipated cost had been under-estimated before Parliament. This was probably due to the fact that the ratio of increase of 150 per cent. above pre-war cost, upon which the Parliamentary estimates were calculated, was, in fact, appreciably lower than the rate of increase then actually ruling. It may well be, however, that the cost of the works remaining to be carried out will compare more nearly with the Parliamentary estimates.

Apart from the above considerations, the Conservators have, since the passing of the Act of 1921, been confronted with additional expenditure which could not have been reasonably anticipated, such as the subsidence of Boulton's Lock House, and the serious collapse of parts of Teddington Weir, and it is feared that many of the other weirs, which were constructed by the Conservators' predecessors, on similar lines to Teddington Weir, of which it is estimated there are between 20 and 30, may, in like manner, be found to be in need of very extensive repairs. No provision was made for this in the original estimates, or for any large expenditure on towing paths which may be undertaken in conjunction with local authorities.

Prior to the War, the very minimum annual expenditure required for the upkeep of the river was represented by £20,000 from revenue, and a further £10,000, mainly from borrowed moneys, making a total of £30,000; but if the Trade Union conditions of hours, subsequently adopted by the Conservators, had been in operation before the War, the work, which then cost £30,000, would have involved an expenditure of £38,000, irrespective of any increase in wages and cost of material. The Conservators do not feel competent to make any calculations as to what the ratio of increase in wages and material will be in and after 1926 over the pre-war rates; but in the light of recent experience it is felt that it would not be prudent to estimate such increase at less than 100 per cent., and for the sake of example and by way of comparison only, assuming the ratio at this figure, the sum required for annual upkeep of the river corresponding to the pre-war figure of £38,000 would be represented by £66,000 per annum, entirely exclusive of capital expenditure.

It might be suggested that certain of the arrears of works are of a character which would legitimately come under the heading of capital, but under the existing conditions of an income limited in duration till 31st December, 1925, and liable to be made the subject of applications for reduction even during that limited period, the Conservators find themselves in the position of being unable to offer sufficient security upon which to borrow. Furthermore, it may be well to remind the Committee that the whole question of expenditure of capital is controlled by the provisions of Section 285 of the Thames Conservancy Act, 1894, which provides that capital moneys shall be applied for the purposes to which capital is properly applicable, and not otherwise. In the absence of a definition in the Act as to what such capital purposes are, the Conservators have, as a matter of practice, been obliged to adopt a certain working construction of the Act as indicated in their capital account; but it is conceivable that, in the case of many of the arrears of works in question, before the Conservators could properly expend capital upon the same their powers under Section 285 would require to be materially widened.

I am, Sir,

Your obedient Servant,

(Signed) F. W. GEARY.

The Secretary,  
Inter-Departmental Committee  
on Thames and Lee Conservancies,

## APPENDIX E.

## THAMES CONSERVANCY.

MEMORANDUM BY SIR ALFRED WOODGATE, C.B.E.,  
DIRECTOR OF ESTABLISHMENTS OF THE MINISTRY  
OF HEALTH, ON THE HEAD OFFICE ORGANISATION  
OF THE THAMES CONSERVANCY.

At the invitation of Lord Newton's Committee I attended at the offices of the Thames Conservancy on Friday, the 24th November, with Mr. J. R. Brooke, C.B., of the Ministry of Transport, to enquire into the reasonableness of the expenditure now being incurred for the establishment work of the Thames Conservancy. The Chairman of the Board, together with Lord Newton and the chief officials of the Thames Conservancy, were present.

The Chairman made a statement as to the organi-

sation and work of the staff, and the chief officials explained in detail their own work and the work of the staffs working under them. Mr. Brooke and I closely questioned them on these details, and afterwards visited the rooms in which the staffs were working and examined the work and the organisation of the work on which they were engaged.

In my opinion the Thames Conservancy establishment is well organised, the work is efficiently performed and the rates of pay are certainly reasonable when compared with comparable employment in public departments or under local authorities.

(Signed) ALFRED WOODGATE.

4th December, 1922.

## APPENDIX F.

## THAMES CONSERVANCY.

*Statement (as furnished by the undertakings) showing the Quantities of Water abstracted in the year 1921 by Water Undertakings, and the amounts of their Contributions to the Conservancy Funds.*

Undertaking.	River giving the supply.	Approximate average daily quantity abstracted. (1921.)	Annual amount paid to the Conservators. (1921.)
		Gallons.	£
Metropolitan Water Board ... ..	Thames	161,800,000	112,500
South-West Suburban Water Company	"	1,696,000	875*
West Surrey Water Company ... ..	"	1,208,000	375†
Woking Gas and Water Company ... ..	"	Negligible	187‡
Oxford Corporation ... ..	"	2,100,000	—
Reading Corporation ... ..	Kennet	2,711,000	—
Banbury Water Company ... ..	Cherwell	380,000	—

\* Entitled Company to abstract up to 2,000,000 gallons daily average.

† Minimum payment, covering abstraction up to 1,500,000 gallons daily average.

‡ Minimum payment, covering abstraction up to 250,000 gallons daily average.

## APPENDIX G.

Lee Conservancy.—Table of Annual Expenditure, 1912-13 to 1921-22.

	1912-13		1913-14		1914-15		1915-16		1916-17		1917-18		1918-19		1919-20		1920-21		1921-22	
	£	%	£	%	£	%	£	%	£	%	£	%	£	%	£	%	£	%	£	%
(a) Maintenance of River Works ...	7,381	28.20	5,418	19.77	5,760	21.10	6,034	21.80	6,448	21.98	7,278	23.13	7,753	24.62	11,325	31.44	11,741	32.09	12,508	30.13
(b) Navigation and Regulation of ...	2,331	8.94	2,731	9.97	2,767	10.13	3,053	11.03	3,069	10.46	3,280	10.43	3,495	11.05	4,050	11.24	4,745	12.97	5,775	13.91
(c) Prevention of Pollution ...	2,085	7.36	2,022	7.38	1,958	7.17	1,865	6.74	1,818	6.19	2,127	6.76	2,738	8.06	2,517	6.99	2,321	6.34	2,892	6.94
(d) i. Office Expenses, London and ...	2,552	9.02	3,073	11.21	3,177	11.64	3,140	11.34	2,833	9.65	3,020	9.60	2,491	9.27	3,610	10.02	3,365	10.84	3,852	9.31
ii. Enfield ...	4,017	14.19	4,964	18.11	4,287	15.70	4,419	15.96	5,911	20.15	5,387	19.08	4,293	15.47	5,222	14.53	5,174	17.42	5,222	17.33
(e) General Charges ...	8,788	31.05	8,772	32.01	8,763	32.10	8,762	31.65	8,763	29.57	8,763	29.57	8,763	29.57	8,763	29.57	8,763	29.57	8,763	29.57
(f) Service of Loans ...	351	1.24	425	1.55	590	2.16	410	1.48	438	1.70	1,062	3.19	1,050	3.02	588	1.49	935	2.55	646	1.56
(f) River Stort ...	28,305	100.00	27,405	100.00	27,302	100.00	27,683	100.00	29,340	100.00	31,457	100.00	31,623	100.00	36,024	100.00	36,587	100.00	41,510	100.00
Total ...	28,305	100.00	27,405	100.00	27,302	100.00	27,683	100.00	29,340	100.00	31,457	100.00	31,623	100.00	36,024	100.00	36,587	100.00	41,510	100.00

## APPENDIX H.

Lee Conservancy.—Table of Annual Revenue, 1912-13 to 1921-22.

	£	%	£	%	£	%	£	%	£	%	£	%	£	%	£	%	£	%	£	%
(a) Tolls and Charges:—	14,129	75	16,082	87	15,597	82	18,881	65	15,584	58	10,793	77	12,339	114	13,710	88	10,547	98	10,547	98
Commercial ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Pleasure ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
TOTAL ...	14,204	47.78	16,169	49.40	15,679	49.19	18,946	52.82	19,613	53.20	15,642	47.05	10,870	36.62	12,453	38.21	13,798	40.49	10,645	25.16
(b) Water Rents:—	8,000	26.91	8,000	24.44	8,000	25.10	8,000	22.30	8,000	21.70	8,000	24.07	8,000	26.95	8,000	24.55	8,000	23.48	17,000	40.18
M.V. General ...	2,000	6.73	2,000	6.11	2,000	6.28	2,000	5.57	2,000	5.43	2,000	6.02	2,000	6.74	2,000	6.14	2,000	5.87	3,500	8.27
Prevention of Pollution ...	1,194	4.02	1,314	4.02	1,158	3.63	1,351	3.80	1,343	3.64	1,588	4.78	1,571	5.29	1,588	4.90	1,763	5.17	1,977	4.67
Other ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
TOTAL ...	11,194	37.66	11,314	34.57	11,158	35.01	11,351	31.67	11,343	30.77	11,588	34.87	11,571	38.98	11,588	35.59	11,763	34.52	22,477	53.12
(c) Rents and Miscellaneous ...	4,232	14.24	5,228	15.97	5,017	15.74	5,541	15.45	5,888	15.97	5,897	17.74	6,535	22.02	7,234	22.20	7,247	21.37	5,346	12.64
(d) Short Navigation:—	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tolls ...	59	37	12	8	13	6	10	11	14	6	109	23	82	7	88	7	90	8	83	10
Miscellaneous ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
TOTAL ...	96	32	20	0.6	19	0.6	21	0.6	20	0.6	115	34	105	36	95	29	98	29	93	22
(e) Transfer from Repair Suspense ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Also ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
GRAND TOTAL ...	29,726	100.00	32,731	100.00	31,873	100.00	35,869	100.00	36,864	100.00	33,242	100.00	29,681	100.00	32,589	100.00	34,076	100.00	42,310	100.00

a Includes three months higher charges

b Three months higher charges: three months at lower rates.

## APPENDIX J.

## LEE CONSERVANCY.

*River Lee :—Table of Capital Expenditure 1912-13 to 1921-22.*

—	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.	1921-22.
Locks, Weirs and Lockhouses.	£ —	£ —	£ —	£ —	£ —	£ —	£ 1,294	£ —	£ 36	£ —
TOTAL ...	—	—	—	—	—	—	1,294	—	36	—

*Table of Capital Receipts.*

Miscellaneous ...	—	—	—	—	—	2,000	—	—	—	50
TOTAL ...	—	—	—	—	—	2,000	—	—	—	50

*River Stort :—Table of Capital Expenditure 1912-13 to 1921-22.*

Locks, Weirs and Lockhouses.	1,448	3,770	3,675	3,274	3,039	1,697	1,408	4,482	5,881	5,383
Dredging ...	793	1,374	1,258	1,318	1,348	591	5	—	208	1,476
Towpaths and Banks	—	—	—	—	29	222	34	275	521	228
Miscellaneous...	314	107	95	36	12	81	6	3	—	—
TOTAL ...	2,555	5,251	5,028	4,628	4,428	2,591	1,453	4,760	6,610	7,087

*Table of Capital Receipts 1912-13 to 1921-22.*

Miscellaneous... ..	—	75	—	121	—	—	13	—	—	450
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## APPENDIX K.

*Lee Conservancy.—Table W.B.K. 7.—Estimate of Income and Expenditure for the 10 years—1921 to 1930—after bringing in additional Revenue anticipated to be received from increased charges proposed by the Bill and additional Working Expenses and charges in respect of new Capital Works, and cost of carrying out deferred Repairs and Renewals.*

Year ended 31st March.	INCOME.					EXPENDITURE.									Surplus for year.	Deficit for year.	Year ended 31st March.
	Totals.	Water Rents.	4	Charges for Properties, Wharves, etc.	Other Income.	Total.	Working Expenses.	Deferred Repairs to be carried out and Special Renovels.	Short Revenue to be met.	Capital Expenditure.		Interest and Fund on existing Capital.	Total.				
										Amount During Year.	Interest and Fund at 7½%.						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
1921 (Actual)...	£ 13,798	£ 9,763	£ 3,442	£ 1,793	£ 4,105	£ 32,901	£ 26,298	£ —	£ 837	£ —	£ —	£ 8,703	£ 35,838	£ —	£ —	1921	
1922 .....	12,662	18,763	3,442	1,500	150	36,517	29,751	3,817	813	29,950	2,245	8,613	41,422	6,546	4,905	1922	
1923 .....	27,189	22,763	3,442	1,500	150	55,044	29,751	6,092	800	44,724	5,697	8,623	48,498	1,160	—	1923	
1924 .....	27,189	22,763	3,442	1,500	150	55,044	29,751	6,092	600	45,435	9,008	8,433	53,884	—	7	1924	
1925 .....	28,189	22,763	3,442	1,500	150	56,044	29,751	6,093	300	19,589	11,984	8,456	56,884	—	640	1925	
1926 .....	28,189	22,763	3,442	1,500	150	56,044	29,751	6,093	250	19,089	13,416	8,466	57,976	—	1,932	1926	
1927 .....	28,189	22,763	3,442	1,500	150	56,044	29,751	6,093	200	19,089	13,416	8,376	59,267	—	3,223	1927	
1928 .....	28,189	22,763	3,442	1,500	150	56,044	29,751	6,093	100	19,089	16,278	8,286	60,558	—	4,514	1928	
1929 .....	29,189	22,763	3,442	1,500	150	57,044	29,751	6,093	100	—	16,395	8,196	61,135	—	4,091	1929	
1930 .....	29,189	22,763	3,442	1,500	150	57,044	29,751	—	—	—	16,395	8,106	54,852	2,192	—	1930	
1931 .....	29,189	22,763	3,442	1,500	150	57,044	29,751	—	—	—	16,395	8,106	54,852	2,192	—	1931	

\* Deferred Repairs, 1922 ... £3,046 charged to Suspense Account.  
Do. do, 1923 ... 2,275 do.  
25,321

## APPENDIX K.

## COPY OF RELATIVE CORRESPONDENCE.

1.

6, Whitehall Gardens, S.W.1.  
8th November, 1922.

SIR,

INTER-DEPARTMENTAL COMMITTEE ON THE THAMES  
AND LEE CONSERVANCIES.

In the case of the Thames Conservancy the Committee are considering whether it is possible to give in their Report some estimate as to the annual income which should be made available for the proper maintenance of the Conservancy, and it would appear advisable to adopt a similar course in the case of the River Lee. The Committee would therefore be glad if your Board could supplement the evidence given by Mr. Barnard and Mr. Keen as regards the following points:—

It is observed from Table W.B.K.1 that during the years 1910-11 to 1913-14 the average cost of maintaining the navigation and works in respect of both labour and materials was £6,655 and perhaps your Board would say whether this amount may be taken to represent fairly the standing cost of maintenance on the basis of labour and materials standing at their pre-war cost, and also whether they consider that the cost of labour and materials may fairly be taken at about 100 per cent. above pre-war at the present time.

Table W.B.K.7 shows the estimated capital expenditure during the years 1922-30; it was stated in evidence, however, that this table was prepared before the programme of works now being carried out was settled, and the Committee would be glad if a revised schedule could be submitted showing the more recent proposals, and in particular the present estimate of the Conservancy Board with regard to works requiring capital expenditure in the years 1924-30.

Table W.B.K. 7 also shows expenditure upon deferred repairs and special renewals, and it would be convenient if a copy of the programme upon which

this estimate is based could be laid before the Committee.

Table W.B.K. 1 gives the actual expenditure of the Conservancy Board for the year 1921-22 upon establishment charges and other working expenses, and your Board might wish to put in a later estimate of the expenditure under this heading for the guidance of the Committee.

I am, Sir,

Your obedient Servant,  
(Signed) JOHN HUTT,  
Secretary of the Committee.

The Clerk to the Lee Conservancy Board,  
Surrey House,

Victoria Embankment, W.C.

2.

The Lee Conservancy Board,

Surrey House,

Victoria Embankment,

London, W.C.

14th November, 1922.

SIR,

INTER-DEPARTMENTAL COMMITTEE ON THAMES AND  
LEE CONSERVANCIES.

I have submitted to the Board your letter of the 8th inst., and by their direction beg to inform you that they regret that they cannot see their way to furnish the information for which you ask in your letter.

I am, Sir,

Your obedient Servant,  
(Signed) S. R. HOBDAY.  
Clerk of the Board.

The Secretary,

Inter-Departmental Committee  
on Thames and Lee Conservancies.

## APPENDIX L.

*Thames and Lee Conservancies.—Table of the average Annual Expenditure of the Conservancies over the Period of Eight Years preceding the 1921 Acts.*

	THAMES.		LEE.	
	1913 to 1920.		1913-14 to 1920-21.	
	£	%	£	%
(a) Maintenance of River Works ... ..	18,847	31·97	7,720	24·96
(b) Navigation and Regulation of Water ...	9,770	16·57	3,399	10·99
(c) Prevention of Pollution ... ..	7,344	12·46	2,171	7·02
(d) (i) Head Office Expenses ... ..	9,192	15·59	3,219	10·41
(ii) General Charges ... ..	5,318	9·02	4,982	16·11
(e) Service of Loans ... ..	8,480	14·39	8,756	28·31
(f) River Stort ... ..	—	—	681	2·20
	58,951	100·00	30,928	100·00

## APPENDIX M.

*Thames and Lee Conservancies.—Table of Average Annual Revenue of the Conservancies over the Period 1913–1920.*

Source.	Thames, 1913–1920.				Lee, 1913–14–1920–21.			
	£	Per cent.	£	Per cent.	£	Per cent.	£	Per cent.
(a) Navigation Tolls and Charges :—								
Commercial ... ..	3,126	5·29			15,319	45·91		
Pleasure ... ..	8,991	15·23			77	·23		
			12,117	20·52			15,396	46·14
(b) Water Rents :—								
Metropolitan Water Board ...	40,625	68·82			10,000	29·97		
Other ... ..	537	·91			1,462	4·38		
			41,162	69·73			11,462	34·35
(c) Rents and Miscellaneous ...	—	—	5,753	9·75	—	—	6,074	18·21
(d) Transfers from Suspense Account ...	—	—	—	—	—	—	372	1·11
(e) Stort Navigation ... ..	—	—	—	—	—	—	62	·19
	—	—	59,032	100	—	—	33,366	100

## APPENDIX N.

*Statement showing the Natural flow of the rivers Thames and Lee and the Quantities and Cost of Water abstracted by the Metropolitan Water Board. 1911–1921.*

IN MILLION GALLONS.

THAMES				LEE.			
—	Natural Flow. m.g.	Quantity Abstracted. m.g.	Per cent.	—	Natural Flow.* m.g.	Quantity Abstracted. m.g.	Per cent.
1911 ...	451,132	54,278	12	1910–11	40,734	18,531	45
1912 ...	777,837	52,632	7	1911–12	44,749	18,680	42
1913 ...	615,303	52,522	9	1912–13	50,990	21,796	43
1914 ...	484,715	54,305	11	1913–14	42,048	23,501	56
1915 ...	842,428	52,017	6	1914–15	55,772	22,000	39
1916 ...	875,420	54,129	6	1915–16	67,014	22,479	34
1917 ...	616,329	57,049	9	1916–17	64,496	22,740	35
1918 ...	564,803	57,028	10	1917–18	55,261	22,630	41
1919 ...	741,114	60,420	8	1918–19	75,738	22,557	30
1920 ...	564,335	60,206	11	1919–20	56,285	22,995	41
1921 ...	260,115	59,075	23	1920–21	35,113	23,835	68
	6,793,431	613,661	9		588,198	241,834	41

\* The figures in this column do not take into account the quantity of water brought into the river by the streams between Feilde's Weir and the intakes at Enfield and Ponders End, for which the figures are not available.

	Thames.	Lee.
Total quantity abstracted by the Metropolitan Water Board from the rivers during the years 1912–1919 (million gallons) ... ..	440,102	180,788
Total of annual payments by the Metropolitan Water Board to the Conservancies during the years 1912–1919 ... ..	£320,000	£80,000
Cost to Metropolitan Water Board of one million gallons, during the years 1912–1919, on the basis of the annual payments to the Conservancies... ..	£0-14-7	£0-8-10

# APPENDIX O.

*Water Supply Statistics.—Year 1920 or 1921.—London and other large Cities and Towns in Great Britain.—Particulars obtained by the courtesy of the British Waterworks Association.*

City or Borough.	(1)	(2)	(3)	(4)	(5)	Percentage of Water supplied by		(8)	Per head of Population.		(10)	(11)
			Gallons (Imperial).	Gallons (Imperial).	Number of Houses and other Buildings supplied.	Gravitation.	Pumping.	Capital Cost of Works.			Total Annual Expenditure (maintenance management, interest, sinking fund, miscellaneous).	Per head of Population.
London (M.W.B.)	6,833,667	275,351,700	38	1,132,405	99.96	04	—	50,648,925	£	£	4,075,906	4. d.
Manchester	1,121,000	51,626,000	31	385,000	100.00	—	—	8,412,574	7 8 9	7 10 1	549,833	9 10
Birmingham	921,861	28,577,691	31.43	192,316	53.46	46.54	—	8,500,016	9 4 5	9 4 5	633,146	13 9
Liverpool	965,221	36,466,000	37.78	162,848	92.76	7.23	—	6,556,570	6 15 10	6 15 10	480,648	10 0
Glasgow	1,250,000	79,147,000	63	255,000	37.25	2.75	—	4,847,022	3 17 7	3 17 7	417,113	6 8
Nottingham	343,761	9,646,839	27.58	89,607	25.00	75.00	—	1,451,588	4 3 0	4 3 0	Working Expenses 138,940 Capital Charges... 59,887	7 8 3 5
Rochdale	126,726	2,595,584	20.40	30,000 approx.	100.00	—	—	899,966	7 2 0	7 2 0	73,729	11 8
Cardiff	250,000	6,909,000	Trade 11.39 Domestic 16.25	77,562	96.29	3.71	—	1,782,808	7 4 0	7 4 0	154,955	12 4
Batton	313,000	8,073,000	35.80	75,600	58.10	41.90	—	1,585,091	5 1 3	5 1 3	162,930	10 5
Bristol	387,147	12,069,000	31.15	75,600	58.10	41.90	—	2,683,813	6 13 9	6 13 9	Working Expenses 112,194 Interest and Dividend ... 119,348	10 5
Sheffield	700,654	21,230,420	30.30	121,036	100.00	—	—	5,227,382	7 9 3	7 9 3	349,115	12 0
Southampton (c)	209,000	6,775,000	Domestic 22.08 Trade 10.39	41,500	100.00	—	—	560,189	4 1 4	4 1 4	74,137	9 9
Leeds	474,615	16,373,000	Trade 36.12	120,000	78.87	21.13	—	4,201,521	8 17 1	8 17 1	307,435	12 11
Edinburgh	450,000	21,740,000	47.89	—	100.00	—	—	2,911,975	6 9 5	6 9 5	266,272	11 10
(Census 1921).												

(c) Figures for the year 1921-22.

*Note.*—In reading the above statistics regard must always be had to the varying circumstances of each locality. No two towns can occupy the same area geographically. And the different conditions as to the needs of the staple industries; whether maritime, or a health resort; filtration; elimination of moorland water tint; pumping; existing system of sewage (water-carriage or otherwise); prevalence of baths, etc., are among the many considerations to be borne in mind.



## APPENDIX P.

## MERSEY AND IRWELL JOINT COMMITTEE.

*Constituent Authorities* :—Lancs. and Chester County Councils; Bolton, Bury, Manchester, Oldham, Rochdale, Salford and Stockport County Boroughs.

1912. 1913. 1920. 1921.  
*Annual Expenditure* ... £4,401 £4,466 £6,995 £8,510

*Contributions from Constituent Authorities.*

Authority.	Proportion of total expenditure contributed.	Amount of Contribution.			
		1912.	1913.	1920.	1921.
Lancashire County Council.	$\frac{1}{4}$	£ 1,456	£ 1,480	£ 2,264	£ 2,576
Chester County Council.	$\frac{1}{4}$	546	555	849	966
Bolton County Borough.	$\frac{1}{4}$	182	185	283	322
Bury County Borough.	$\frac{1}{4}$	182	185	283	322
Manchester County Borough.	$\frac{1}{4}$	1,092	1,110	1,698	1,932
Oldham County Borough.	$\frac{1}{4}$	182	185	283	322
Rochdale County Borough.	$\frac{1}{4}$	182	185	283	322
Salford County Borough.	$\frac{1}{4}$	364	370	566	644
Stockport County Borough.	$\frac{1}{4}$	182	185	283	322
		4,368	4,440	6,792	7,728

## RIBBLE JOINT COMMITTEE.

*Constituent Authorities*.—Lancs. County Council; Blackburn, Burnley, Preston and Wigan County Boroughs.

1912. 1913. 1920. 1921.  
*Annual Expenditure* ... £2,780 £2,906 £4,284 £5,509

*Contributions from Constituent Authorities.*

Authority.	Proportion of total expenditure contributed.	Amount of Contribution.			
		1912.	1913.	1920.	1921.
Lancashire County Council.	$\frac{1}{4}$	£ 1,539	£ 1,665	£ 2,367	£ 2,817
Blackburn County Borough.	$\frac{1}{4}$	342	370	526	626
Burnley County Borough.	$\frac{1}{4}$	342	370	526	626
Preston County Borough.	$\frac{1}{4}$	342	370	526	626
Wigan County Borough.	$\frac{1}{4}$	171	185	263	313
		2,736	2,960	4,208	5,008

## WEST RIDING OF YORKSHIRE RIVERS BOARD.

*Constituent Authorities*.—West Riding of Yorkshire County Council; Bradford, Halifax, Huddersfield, Leeds, Rotherham, Sheffield,\* Barnsley,\* Dewsbury and Wakefield County Boroughs.

1912. 1913. 1920. 1921.  
*Annual Expenditure* ... £7,686 £7,586 £12,689 £13,368

*Contributions from Constituent Authorities.*

Authority.	Proportion of total expenditure contributed.	Amount of Contribution.			
		1912.	1913.	1920.	1921.
Yorks W.R. C.C.	$\frac{1}{5}$	£ 3,825	£ 3,995	£ 6,290	£ 8,160
Bradford C.B.	$\frac{1}{5}$	675	705	1,110	1,440
Halifax C.B.	$\frac{1}{5}$	225	235	370	480
Huddersfield C.B.	$\frac{1}{5}$	225	235	370	480
Leeds C.B.	$\frac{1}{5}$	900	940	1,480	1,920
Rotherham C.B.	$\frac{1}{5}$	225	235	370	480
Sheffield C.B.	$\frac{1}{5}$	675	705	1,110	1,440
		6,750	7,050	11,100	14,400

\* These County Boroughs are represented on the Board by the County Council.

† These sums include the contributions from Barnsley, Dewsbury, and Wakefield, viz. :—

	1920.	1921.
Barnsley	£ 132	£ 173
Dewsbury	183	244
Wakefield	181	234

## APPENDIX Q.

SHORT HISTORICAL SURVEY OF THE SALIENT FEATURES  
IN THE ADMINISTRATION OF THE RIVERS THAMES  
AND LEE.*River Thames.*

1. *Early History.*—The Thames has been from time immemorial one of the four great rivers of the Kingdom (Thames, Severn, Ouse and Humber) upon which navigation was safeguarded by the Crown and by Parliament, although there is evidence of the existence in very early times of hindrances to navigation in the shape of weirs of different kinds set up by the landowners along the banks. King Richard I, in his Charter granting the river below Staines to the Corporation of the City of London, referred to the weirs on the river, and confirmed previous edicts for their removal, and against the setting up of any such obstructions. Magna Carta also recited that the great rivers in the Kingdom were to be free, and enjoined that all weirs thenceforward should be removed from the Thames and Medway; and numerous Petitions and Acts of Parliament dealt with the recurring grievance of obstructions in the River Thames.

These were usually known as gorges, mills, stanks, stakes or kiddles, and appear to have been designed generally to provide riparian owners with a good head of water for their mills, or to trap fish; the grievance in regard thereto being twofold, in that immature fish were destroyed, and the navigation was disturbed and subjected to tolls on passage.

2. *Growth of the Navigation.*—In the 17th century the advent of larger vessels upon the Thames, which were unable to pass certain shallows between Oxford and Burcot, brought about the passage of two Acts, in the reign of James I, for making the river above Burcot navigable for larger boats; in the later of these Acts the use of horses for towing boats was referred to for the first time, and authority was given for the use of the towing paths by men and horses engaged in towage, and for the use of winches, ropes and other engines at convenient places for facilitating the passage of boats.

3. With the advent of larger vessels on the Thames the weirs became useful to the navigation, in that they maintained a head of water in the reaches and minimised the labour of haulage by localising the greatest effort at the passage of the weirs, where winches and other appliances were provided. This growing factor of utility to the navigation was clearly brought out in an Act of the 6th and 7th years of William III, which set up Commissioners to regulate the charges made for the use of the navigation, and other matters bearing on the use of the waterway.

4. In the reign of George II, an Act (1729-30) recited that the occupiers of locks, weirs, banks, dams, flood-gates, winches and other engines on the Thames exacted exorbitant sums of money for the passage of boats, and that several persons demanded large sums for the use of the towing paths; the Act appointed Commissioners to regulate these charges between London and Cricklade.

5. *"Flash" and "Pound" Locks.*—The original weirs used on the Thames appear to have been simply dams or barriers constructed across the bed of the river, of which a section was formed of movable boards withdrawn for the passage of vessels. When the water-level above the dam had drained down to something like that below it, the vessel was hauled through the opening, each passage of a lock involving, therefore, the equalisation of levels in two adjoining reaches of the river. In the 17th century a few of these primitive "flash locks," so called from the flash or flush of water which was liberated when equalising the levels, came to be superseded by "pound locks," which impounded a small quantity of water, but it was not until the latter part of the 18th century that pound locks came into general use; early in the 19th century the 600 Commissioners who had jurisdiction over the Upper Thames down to the London Stone at Staines (which was the boundary of the up-river jurisdiction of the City of London)

completed the construction of a system of pound locks between Oxford and Staines. The right of the riparian owners to levy tolls on passage was, however, only finally abolished in 1866, when the Thames Conservators, who had succeeded the City Corporation as Conservators of the Lower River, by an Act of 1857, took over the jurisdiction above Staines.

6. *The Metropolitan Water Supply in its early Stages.*—The River Thames has been used for centuries as a water supply for the Metropolis, and intakes for the supply of the various water companies had, up to the year 1855, been situated at different times at London Bridge, Battersea, Chelsea, Lambeth, and Vauxhall. In 1849 Parliament became anxious about the condition of the Metropolitan water supply, and in 1852 the Metropolitan Water Act was passed, which provided that none of the water companies should after 31st August, 1855, take water from any part of the Thames below Teddington Lock. In 1848 the Lambeth Company, anticipating this prohibition, had applied for powers to take water at Long Ditton, and the Corporation of the City of London, as Conservators of the river up to Staines, being alarmed at the demand for unrestricted powers of abstraction which was contained in the Bill, secured certain conditions from the promoters, which included a restriction of the daily quantity to 20 million gallons, and the payment of a yearly sum of £200 towards the maintenance of the river works (this sum was in 1871 increased to £250).

7. *Metropolis Water Act, 1852.*—After the passage of the Metropolitan Water Act of 1852 the four other Metropolitan Water Companies applied for powers to take water up-stream, and the City of London, pursuing the same course as with the Lambeth Company, secured agreements limiting each of them, namely, the Chelsea, Grand Junction, Southwark and Vauxhall, and West Middlesex Companies, each to 20 million gallons daily and stipulating annual payments of £300 from each. In their subsequent Acts of Parliament the water companies received statutory rights to take water without limit, there being merely an ample saving clause in each for the protection of the rights of the Corporation as Conservators of the river, whilst the limitations of quantity and the financial arrangements were the subject of separate non-statutory agreements.

8. *Thames Conservancy Act, 1857.*—In 1857 the powers, rights and privileges of the Crown and of the City Corporation as Conservators of the Lower River from the London Stone at Staines to Yantlet Creek in Kent were transferred by the Thames Conservancy Act (1857) to a specially created body, the forerunners of the present Conservators. This Act also contained a clause prohibiting the pollution of the river.

9. *Royal Commission on the Prevention of Pollution of Rivers, 1860.*—The Upper River from Cricklade down to Staines was at that period under the jurisdiction of 600 Navigation Commissioners (set up in 1751) and in 1866 the administration of this portion of the river came under review by the Royal Commission on the Prevention of Pollution of Rivers, who dealt with the Thames in a special report. In that Report it was stated that the general condition of the Upper River was extremely unsatisfactory; that there was considerable liability to flooding; and that the navigation was carried on to a large extent by flashes or artificial floods made for the purpose of floating barges over shallows in the navigable channel. Sewage from towns, villages and houses polluted the water, whilst refuse from mills and tanneries, and even floating carcasses of animals, were to be found in the stream. The navigation was impeded by shoals and mud banks, and the Navigation Commissioners appeared to be quite unable to maintain the river in an efficient condition, more particularly as their income from all sources had for some time been insufficient to meet current expenses.

The Commissioners recommended the extension of the jurisdiction of the Conservators, who had

succeeded the City Corporation as regards the Conservancy of the Lower River under the Act of 1857, to cover the whole of the river from Cricklade to Yantlet, and that their powers for the prevention of pollution should be increased. As regards additional funds the Commission suggested that a rental should be levied upon all water works taking water for domestic or trade purposes from the river, and that a tax should be imposed upon properties which would be improved by arterial drainage operations, the proceeds of such tax being devoted to the drainage operations.

One of the Commissioners, Mr. J. T. Harrison, added an Additional Recommendation to the Report, in which the other two Commissioners did not concur; this was to the effect that the Conservators should be empowered to levy a tax upon houses and lands within a few miles of either bank of the Upper River; the proceeds of this tax were to provide a standing income for the Conservators, whilst the taxpayers providing it would have a direct interest in watching over its expenditure. Mr. Harrison urged the need for an increased and stable income, and referred to the use, profit and enjoyment of the river which he considered was derived by communities and individuals living along the banks, who suffered on the other hand from the existing state of pollution and liability to flooding.

10. *Thames Navigation Act, 1866.*—As a result of the Report of the Royal Commission of 1866 the President of the Board of Trade requested the Thames Conservators to take over the jurisdiction of the Upper River from the Navigation Commissioners, and this change was effected by the Thames Navigation Act, 1866, under which each of the Metropolitan Water Companies became bound to pay £1,000 a year to the Conservancy. The Act contained no stipulation as to the quantities of water which might be abstracted, and the agreements in regard to this matter were left to subsist side by side with the new statutory financial arrangements. The jurisdiction of the Conservators was thus extended to cover the main stream from Cricklade to Yantlet Creek, and the property in all locks, dams and weirs was vested in the Conservators, subject to compensation to the owners in certain cases, whilst it was made unlawful for any person by right of claim in respect of any lock, dam or weir to demand tolls in respect of the passage of vessels, which tolls were in future to be levied by the Conservators. Provision was also made for the purification of the river by making it unlawful for polluting matter to be discharged into the stream or within three miles thereof.

11. *Statutory Limitation of Water Abstraction (1866).*—In 1866 occurred the first case of statutory limitation of the quantity of water abstracted from the Thames, the West Middlesex Company being limited in their Act of that year to the 20 million gallons daily which was already provided for in their non-statutory agreement. In 1875 the Chelsea Company were dealt with in a similar manner.

In 1867 the East London Company obtained power to take water from the Thames at Sunbury up to a normal limit of 10 million gallons daily, and it was provided that the Company should pay £1,000 yearly to the Conservators, rising later to £2,000; by the year 1878 all six companies were under obligation under several Acts of Parliament to pay to the Conservators £2,000 each yearly.

12. *Inquiries into the Quality of the Thames Water, 1867-74.*—In the latter half of the 19th Century several inquiries took place as to the suitability of the Thames as a source of water supply for the Metropolis. The Royal Commission of 1867-1869, which was presided over by the Duke of Richmond, reported that when fresh measures were adopted for the purification of the river and for the filtration of the water abstracted, the Thames would be perfectly satisfactory as a source of supply. The Rivers Pollution Commission, however, in their Sixth Report, dated 30th June, 1874, took a radically different view of the subject, and reported in favour of the abandonment of the river as a source of supply, in view of the pollution which occurred; it must be remem-

bered, in this connection, that the Thames Navigation Act of 1866 was the first statute to prohibit the fouling of the Thames by sewage or other offensive matter.

13. *Thames Preservation Committee, 1884.*—In 1884 a Select Committee under the Chairmanship of Mr. Story-Maskelyne was set up to consider the River Thames above Teddington, and to inquire into the operation of the Acts for the preservation of the river, and the steps necessary to secure its enjoyment as a place of recreation. This Committee found that by reason of the development of the railway system the ancient employment of the Thames as the waterway of a considerable commerce had dwindled to an almost insignificant point, whilst the pleasure traffic had in consequence of the convenience afforded by the railways, and the ever increasing tendency of the metropolitan population to seek exercise and recreation on the river, increased in inverse ratio; so much so, that they deemed it necessary to recommend legislation with a view to preserving the character of the river as a place of free and reasonable recreation and enjoyment.

The Committee were impressed with the need of the Conservators for additional funds, which alone could enable them to carry out such further duties as they considered should be placed upon them, and though they did not feel called upon to suggest the proper method of increasing the Conservancy funds, they referred to various modes which suggested themselves, such as a small rate upon the Metropolitan Area, an increase in the water rent paid by the Water Companies, a remission by the Crown of its claim upon the Lower Navigation for £2,500 annually, an increase in the tolls, and finally a small rate upon riparian local authorities in return for the special immunity that might be accorded to them in any future Act from conduct upon the part of the public from which the ordinary law did not protect them. The Committee found that it was desirable to protect the public against the assertion of private claims by riparian owners, and they pointed out that these could not always be effectually resisted by the Conservators owing the lack of funds from which they suffered.

14. *Thames Preservation Act, 1885.*—The Thames Preservation Act, 1885, contained no provision for the raising of new funds, and in the following year the Conservators, finding their income of £12,000 yearly from the water companies insufficient for the reconstruction of the works of the Upper River, promoted a Bill to increase the payments from five Water Companies (excluding the East London). After some negotiation, however, an agreement was reached with those Companies that they should pay in the aggregate a further annual sum of £4,500 (making in all £17,950 from the six Companies) in consideration of which they were to be allowed to abstract 20 million gallons daily in excess (bringing the total daily quantity to 130 million gallons for the six companies).

In 1888, when the first payments under these agreements of 1886 fell due, the question of the legality of the agreements was raised by the Chelsea and West Middlesex Companies, and referred to arbitration, when a decision was obtained in favour of their validity.

15. *Lord Balfour's Commission, 1893.*—The satisfactory quality of the Thames water from the point of view of metropolitan consumption may be considered to have been finally established by the Royal Commission on Metropolitan Water Supply, which was presided over by Lord Balfour of Burleigh. In their Report, dated 1893, this Commission urged, however, the need for exercising all possible vigilance to prevent contamination of the flowing water, and for its adequate storage and filtration after abstraction for supply purposes; they were of opinion that there was still too much discharge of polluting matter into the river, and recommended that the Conservancy powers should be strengthened and additional staff engaged, the funds necessary for the latter purpose being provided by the water companies and such other bodies as were permitted to take water from the river. The Thames Conservators placed before the Commis-

sioners a statement in which they urged that, should London cease to take its water supply from the Thames, it would be necessary for provision to be made for an income equivalent to that received from the water companies, in order that the duties of the Conservancy might continue to be carried out; the Conservators pointed out that the necessity for keeping the river pure would still obtain, even if the water were no longer required for drinking purposes in London.

16. *Thames Conservancy Act, 1894*.—When the Conservancy Bill of 1894, which dealt with the recommendations contained in the Report of Lord Balfour's Commission, was before Parliament, the Metropolitan Water Companies opposed the proposed increases in their contributions on the ground that their payments were already sufficient to cover the cost of keeping the river pure, and that advantage was being taken of their position to upset the agreements of 1886 and to obtain greater contributions from them than were justified by the circumstances. The London County Council also appeared in opposition to the Bill, and urged that the increased cost of the Conservancy should be shared between the riparian inhabitants and the water undertakings; they suggested that the only satisfactory solution of the problem of finance was to make the Conservancy Board a stronger body representing population and to entrust to it a limited power of levying a rate on property situated in the Thames Valley, to meet any deficit in its revenue. These suggestions were not, however, adopted.

The Thames Conservancy Act, 1894, as passed into law, provided for the reorganisation of the constitution of the Conservancy and enlarged their powers and duties, whilst extending their jurisdiction for the prevention of pollution over all the tributaries of the Thames in the counties of Gloucester, Wilts, Oxon, Bucks, Berks, Hants, Surrey, Middlesex, Essex, Kent and London. It also increased the payments of the Metropolitan water companies to a maximum aggregate of £25,450 per annum, whilst confirming the agreements of 1886 and the quantities of water to be abstracted which were embodied therein.

17. *Metropolis Water Act, 1902*.—In the year 1902 the Metropolitan Water Board was constituted as a public trust to take over the undertakings, powers, duties and obligations of the Metropolitan Water Companies, and thereby succeeded to rights of abstraction of water from the river Thames and financial obligations towards the Thames Conservators, which were briefly as follows:—

*Contributions:*

	<i>Yearly.</i> £
Fixed amounts totalling ...	90,450
Variable amounts for excess water, not exceeding ...	9,770
Minimum ...	£40,220

*Rights of Abstraction:*

	<i>Daily.</i> Million gallons.
An unrestricted right to ...	130
At Staines Reservoir ...	35
Excess water, up to ...	51 (average)
Normal Maximum ...	216
Emergency addition (Staines) ...	10
Maximum possible ...	226

18. *Port of London Act, 1908*.—Under the Port of London Act, 1908, the lower portion of the river, from an imaginary line some 285 yards below Teddington Lock down to Yantlet Creek, opposite Southend, was placed under the jurisdiction of the newly-created Port of London Authority, and the constitution of the Conservancy was reorganised on its present lines.

19. *Thames Conservancy Act, 1911*.—In 1911 a Bill was promoted by the Thames Conservators with a view to increasing the payments made by the

Metropolitan Water Board (round about £33,000 a year at the time) and reorganising the arrangements in regard to the abstraction of water. This Bill was opposed by the Water Board, on the ground that their proposed contribution (£55,000 a year) was too great and that their unrestricted right to abstract 130 million gallons per day from the river should not be withdrawn, as was proposed; but agreement upon the essential points was reached, and the Act as passed laid down the following principal conditions governing the abstraction of water by the Metropolitan Water Board:—

*Annual Contributions to the Thames Conservancy.*  
£40,000 up to the end of the year 1919. (Section 3 (1).)

£45,000 from 1920 to 1941 and thereafter, so long as the daily average quantity abstracted shall not exceed 300 million gallons. (Section 3 (2).)

*Conditions of Abstraction of Water.*

(a) *General.*

The actual abstraction on any one day must not exceed 1,200 million gallons, and the daily average over a year must not exceed 300 million gallons; and unless or until the Board shall have obtained power to construct additional reservoirs, over and above the storage of 1,000 million gallons capacity provided for in the Metropolitan Water Board (New Works) Act, 1911, the daily average must not exceed 230 million gallons. Section 4 (1).)

(b) *Above Penton Hook Weir.*

A daily minimum flow of 235 million gallons over this weir must be left. (Section 4 (2).)

Any excess over a flow of 235 million gallons may be taken, up to a daily quantity of 100 million gallons. (Section 4 (3).)

Also half the excess over a flow of 385 million gallons up to a daily quantity of 215 million gallons. (Section 4 (3).)

And all water in excess of a daily flow of 815 million gallons. (Section 4 (5).)

(c) *Below Penton Hook Weir.*

A daily minimum flow of 170 million gallons over Teddington Weir must be left. (Section 4 (6).)

In an emergency the Minister of Health may authorise the reduction of this minimum to 140 million gallons. (Section 7.)

But until the completion of additional storage of 1,000 million gallons capacity provided for in the Metropolitan Water Board (New Works) Act, 1911, or the 15th August, 1913 (since extended to 1925), whichever should be the earlier date, 130 million gallons may be taken below Penton Hook without any restriction as to the flow of the river, on any one day, subject to a maximum abstracted on that day of 130 million gallons, unless there be a flow of 200 million gallons left at Teddington, in which case the excess over such 200 million gallons may also be taken. (Section 5 (1) and (3).)

20. *Thames Conservancy Act, 1921*.—The Thames Conservancy Act, 1921, increased the annual payment of the Metropolitan Water Board by 150 per cent., i.e., from £45,000 to £112,500 per annum, and the contributions of the non-Metropolitan water undertakings by 150 per cent., and confirmed with minor exceptions the tolls and charges for commercial and pleasure traffic which were then in force temporarily by direction of the Minister of Transport. The duration of the Act was limited to five years, and provision was made for the review of the water contributions and the tolls and charges by joint order of the Minister of Health and the Minister of Transport.

*RIVER LEE.*

21. *Early History*.—The River Lee, like the Thames, has been navigated from time immemorial, and supplies of drinking water for the Metropolis have also been drawn from its banks for more than three centuries. Unlike the Thames, however, the naviga-



tion has not followed closely the course of the old river bed, and for a considerable part of its length it forms a separate channel, as the result of continual efforts to improve the winding and marshy reaches of the river.

The navigation of the River Lee, as between Ware and the Thames, is mentioned in Acts of Parliament of 1424 and 1430, in the reign of Henry VI, and a toll of four pence per cargo was imposed by the latter Act; in 1570 an Act was passed "for the bringing of the River of Lee to the North Side of the City of London," which authorised the Lord Mayor, Commonalty and Citizens of London and their successors to "bring" the River Lee from the town of Ware to the North side of the City of London by means of certain new cuts.

22. *The Construction of the New River* (1613).—The year 1613 witnessed the completion of the New River, an aqueduct built by the efforts of Hugh Myddleton, a goldsmith of London, for the purpose of bringing by gravitation the water of the springs of Chadwell and Amwell, in Hertfordshire, to the City of London. This aqueduct was originally some 40 miles in length, but subsequent cuts have been made from time to time, which have reduced its length to about 26 miles. A short channel to the River Lee was also cut at a very early date in the neighbourhood of the Chadwell spring, which enabled water to be abstracted from that river through a gauge (since reconstructed and known as the "New Gauge") to supplement the supply from the springs. The New River Company was established by Royal Charter in 1620.

23. *12 Geo. II, Cap. 32*.—In 1739 an Act was passed for the improvement of the navigation of the Lee, and for enabling the Governor and Company of the New River better to obtain supplies of water for the cities of London and Westminster. This Act defined the course of the river, named a large number of persons as trustees for the execution of certain powers and trusts, and provided for the payment by the New River Company to the Lee Trustees of a capital sum of £3,250 and an annual sum of £350 in consideration of the water abstracted from the River Lee through the gauge referred to in the preceding paragraph; these payments being applied to defray charges and expenses incurred in the preservation and improvement of the navigation between Hertford and Ware.

24. *7 Geo. III, Cap. 51*.—In the reign of George III (1766) an Act passed for the improvement of the navigation of the Lee added about 200 names to the already large body of trustees and conferred upon them further powers, including power to make the Limehouse Cut, which was opened in 1770. This Act provided that the navigation should be a free navigation, subject to the payment of rates and duties which were prescribed, and recited the payments due under the Act of 1739 from the New River Company, which were to be applied to the purposes of the Act of 1766.

25. *The East London Waterworks Company*.—In 1808 the East London Waterworks Company were incorporated and authorised to purchase two existing waterworks, one at Shadwell and the other at West Ham, and to construct reservoirs and other works. In 1829 that company purchased the Hackney Waterworks and Lee Bridge Mills, and obtained an Act enabling them to remove their intake, which was situated at Old Ford, to Lee Bridge, further up the river; this Act also provided for the payment by the company to the trustees of a yearly sum of £250 in consideration of the water abstracted, which sum was to be applied to the general purposes of the navigation.

26. *Lee Navigation Improvement Act, 1850*.—The Lee Navigation Improvement Act of 1850 enabled the Trustees further to improve the navigation, and to dispose of the surplus water which was not required for the purposes of the navigation. It provided for the incorporation of the Trustees of the River Lee, and empowered them to carry out certain new works, whilst it increased the payments made by the East London Waterworks Company on account of certain extraordinary quantities of water which they were

to be entitled to take from the river. Section 68 of this Act empowered the Trustees to supply water in bulk to any waterworks company, Corporation, Commissioners or persons, subject to such conditions as the Trustees should deem necessary or advisable for ensuring such a supply of water for the purposes of the navigation as would be necessary for present or future traffic thereon. Provision was made for the erection of a lock at Bow, and it was enacted that the Trustees should never take tolls upon that part of the navigation between Bow Creek and Old Ford known as the Bow River and Bow Back River (Section 45).

27. *The Tottenham Intake* (1852).—In 1852 the New River Company agreed with the Lee Trustees to pay a further annual sum of £1,500 in consideration of their being allowed to take an additional supply of water from the Lee at Tottenham; this brought the company's total annual payment up to £1,850.

28. *River Lee Water Act, 1855*.—The River Lee Water Act of 1855 repealed the liability of the New River Company and the East London Waterworks Company to make payments to the Trustees under the earlier Acts (Section 4), and provided that they should pay an aggregate yearly sum of £3,500, whilst the New River Company should also pay a capital sum of £42,000 (Section 5); subject to these payments Section 9 vested absolutely and forever in the two Companies all the water from time to time flowing into or down the River Lee and the navigation thereof which the Trustees had power to sell under the Act of 1850, except such quantities as were reserved (Section 11) to the Trustees for the purposes of the navigation. These quantities reserved for the navigation were made up as follows:—

- (a) Upper daily quantity—576,000 cubic feet (3,600,000 gallons) per diem to the first lock above Feilde's Weir.
- (b) Middle daily quantity—720,000 cubic feet (4,500,000 gallons) per diem down to Waltham Town Lock.
- (c) Lower daily quantity—564,000 cubic feet (3,500,000 gallons) per diem down to Old Ford Lock.

Section 27 provided that where it became necessary, in order to maintain the head levels of the navigation, to pass down more water than specified under the three heads of Section 11, there should be a corresponding deduction from the water company's payments at the rate (failing special agreement) of 3d. per 1,000 gallons.

Section 35 empowered the Trustees to grant to any persons the right to use water for the purpose of steam engines or manufactories on the banks of the navigation, such water being considered as part of the quantities reserved to the Trustees and to be returned to the navigation within 24 hours; and Section 38 obliged the Trustees, at the request and expense of the two Water Companies, to make such modifications of their works as might be necessary for the purpose of economising and storing the water. Other Sections saved the rights of certain riparian towns and property owners.

29. *Royal Commission on the Prevention of Pollution of Rivers, 1866*.—Up to that time the Trustees of the River Lee had been a body constituted for preserving and improving the navigation, and they were not concerned in the preservation of the purity of the water. In consequence of an outbreak of cholera in July and August, 1866, in a district supplied by the East London Company, the Royal Commission on the Prevention of Pollution of Rivers, which was then in session, made a special inquiry into the conditions of the Lee Valley. The Second Report of this Royal Commission, dealing with the River Lee, states that, whilst the navigation works on the Upper Thames had fallen into ruin, those on the Lee were in better order, and the navigation was more efficient, and the trade greater than at any former period. They found that the waters of the river and its tributaries were fouled by town sewage and by refuse from manufactories, and that the law in respect of

pollution was in an unsatisfactory condition. In particular they commented upon the foulness of the water at Old Ford and in the Limehouse Cut during the summer months. The Commission recommended that the charge of the entire watershed should be vested in a Conservancy Board, that the powers and properties of the Lee Trustees should be transferred thereto, and that the Conservators should receive powers to purchase the Stort Navigation with a view to consolidating it with that of the Lee.

In regard to the prevention of pollution, they urged that after the lapse of a period to be fixed it should be made unlawful for any unpurified sewage or for any injurious refuse to be put into the Lee or any of its tributaries, and that the Conservators should set up a staff for the enforcement of the prohibitions against the pollution of the river, the funds necessary for this purpose being provided by the two Water Companies. The Commissioners took note of the fact that the New River Company had already accepted financial liability for the disposal of the sewage of the town of Hertford, and that the East London Company had similarly paid for the provision of an intercepting drain for the diversion below Tottenham of the sewage of Ponders End, Edmonton and Tottenham; but they were of opinion that the purer quality of the water which the Lee would yield in consequence of the institution of new measures to protect it throughout its course would more than compensate these Companies and their consumers for the slight addition to the water rate which would be necessary to meet the expense of these new measures.

30. *Lee Conservancy Act, 1868.*—The Lee Conservancy Act, 1868, provided for the setting up of a Conservancy Board, with special powers to prevent pollution. The two Water Companies were together to defray the cost of the protection of the water up to a maximum of £1,000 per annum (Section 131), whilst they were empowered on the other hand to require the Conservancy Board to take proceedings under the provisions for the prevention of pollution. (Section 98.) Section 76 empowered the Conservators to purchase the Stort Navigation by agreement, and to levy tolls thereon.

31. *Rivers Pollution Prevention Act, 1876.*—When the Rivers Pollution Prevention Act of 1876 was passed a special provision (Section 9) was inserted reserving exclusively to the Lee Conservancy Board the powers which sanitary authorities received under that Act, thus making the Board the sole authority for the prevention of pollution within the Lee watershed.

32. *Lord Balfour's Commission, 1893.*—The recommendations of the Balfour Commission in regard to the quality of the water and the measures which should be adopted to keep it pure, which are referred to in the Notes on the Thames, were directed equally to the River Lee and its tributaries.

33. *Lee Conservancy Act, 1900.*—The Lee Conservancy Act, 1900, increased the number of Conservators, and contained a permissive clause enabling county councils and other local authorities concerned

to assist the Conservators financially, and to enter into agreements with them. It also increased the aggregate yearly sums payable by the two Water Companies under Section 5 of the Act of 1855 to £8,000, and under Section 131 of the Act of 1868 (Prevention of Pollution) to a maximum of £2,000.

34. *Water Companies Voluntary Payments (1883-1900).*—In addition to their statutory contributions the New River and East London Companies had from time to time agreed to make certain voluntary payments to the Lee Conservators, as follows:—

	£	s.	d.
1883	750	0	0
1893-4	1,500	0	0
1894-5	1,500	0	0
1895-6	1,500	0	0
1896-7	1,500	0	0
1897-8	1,500	0	0
1898-9	1,129	0	0
1899-1900	1,129	0	0

35. *Metropolis Water Act, 1902.*—The Metropolitan Water Board, succeeding to the undertakings, powers and duties of the Metropolitan Water Companies under the Metropolis Water Act, 1902, became entitled to draw water from the Lee, and liable for contributions to the Conservators, as follows:—

*Contributions (see Lee Conservancy Act, 1900).*

*Rights of Abstraction (see River Lee Water Act, 1855).*

36. *The Stort Navigation taken over (1911).*—In 1911 the Stort Navigation was taken over for a nominal consideration by the Lee Conservancy Board under their powers in Section 76 of the Lee Conservancy Act, 1868. This navigation, some 14 miles in length, was originally placed under the jurisdiction of Commissioners in the reign of George II, but after passing through the hands of various owners it was purchased in 1898 by Sir Walter Gilbey, Bart., and in 1905 transferred for the sum of £500 to the Stort Navigation Company Limited, who found themselves unable to maintain it, the receipts being insufficient to meet the expenditure.

37. *The Lee Conservancy Act, 1921.*—The Lee Conservancy Act, 1921, provided for increased tolls and charges on the navigation, and for temporary increases in the contributions of the Metropolitan Water Board, namely, by 150 per cent. in the case of the contribution for general purposes (from £8,000 to £20,000) and by 100 per cent. in the case of that devoted to the prevention of pollution (from maximum £2,000 to maximum £4,000); with a revision clause for all the increased charges on the lines of that contained in the Thames Conservancy Act, 1921. It provided also that the clauses sanctioning the increased payments by the Metropolitan Water Board should have effect for five years, as in the case of the Thames, but that this period could be extended by joint order of the Minister of Health and the Minister of Transport.

ERRATUM SLIP.

INTER-DEPARTMENTAL COMMITTEE ON THE THAMES AND LEE CONSERVANCIES.

CORRIGENDUM.

The following table should be substituted for Appendix C on page 24 :—

APPENDIX C.

*Thames Conservancy.—Table of Capital Expenditure. 1913-1921.*

—	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
	£	£	£	£	£	£	£	£	£
Locks, Weirs and Lockhouses ...	13,819	8,023	<i>Cr. 2,006</i>	834	<i>Cr. 1,190</i>	5	2,231	2,044	1,100
Dredging ...	583	713	32	—	—	—	—	—	—
Towpaths and Banks ...	953	1,422	987	—	<i>Cr. 35</i>	<i>Cr. 35</i>	640	311	24
Plant and Works ...	1,277	211	111	112	—	—	295	450	37
Purification Service ...	—	57	—	—	—	280	—	600	—
Miscellaneous ...	1,012	358	5	642	—	<i>Cr. 39</i>	—	30	486
TOTAL ...	17,644	10,784	<i>Cr. 871</i>	1,588	<i>Cr. 1,225</i>	211	3,166	3,435	1,647
Extinction of Debt. (Navigation Commissioners.)	25	—	—	—	40	—	15	—	—
	17,669	10,784	<i>Cr. 871</i>	1,588	<i>Cr. 1,185</i>	211	3,181	3,435	1,647

*Table of Capital Receipts. 1913-1921.*

	£	£	£	£	£	£	£	£	£
From Loans ...	11,500	6,000	—	—	—	—	—	—	—
Miscellaneous ...	85	—	—	45	40	605	15	—	—
Contributions from Revenue ...	2,470	1,156	1,009	139	—	—	3,166	2,129	727
	14,055	7,156	1,009	184	40	605	3,181	2,129	727





## APPENDIX R.

(a) List of Witnesses who appeared before the Committee.

—	Dates.	Question Nos.	Representing.	Evidence concerning
Barnard, E. B., O.B.E., M.A., D.L., J.P.	29th June	3108-3244 ...	Lee Conservancy Board ...	Lee.
Boston, The Rt. Hon. Lord ...	15th June	1752-1817 ...	Thames Riparian Owners and Occupiers Association.	Thames
Brooke-Hitching, Lieut. Col. P. M.	25th May	692-816 ...	Thames Boating Trades Association.	Thames.
Bullen, A. W. ...	13th July	3814-3835 ...	Hampton Wick U.D.C. ...	Thames.
Calderwood, W., J.P. ...	30th June	3438-3508 ...	Eastern Lighterage Co. ...	Lee.
Chisenhale-Marsh, W. S. ...	13th July	3756-3798 ...	Essex County Council ...	Lee.
Colvin, Brig.-Gen. R. B., C.B., M.P.	20th July	3829-3978 ...	Lee Valley Drainage Commission	Lee.
Desborough, Rt. Hon. Lord, K.C.V.O.	1st June	817-1215 ...	Thames Conservancy ...	Thames.
Durant, E. C. ...	16th June	2733-2788 ...	Windor Corporation ...	Thames.
Faulkner, J. ...	30th June	3385-3415 ...	Gloucester R.D.C. ...	Thames.
Gibbons, J. S. ...	29th June	3036-3078 ...	Gloucestershire County Council...	Thames.
Green, R. ...	20th July	3866-3892 ...	Millers and Water Power Users Committee.	Thames.
Griffiths, G. J., M.Inst.C.E.	1st June	1216-1280 ...	Thames Conservancy ...	Thames.
Halt, Hugh, D.C.L. ...	16th June	2177-2252 ...	Oxford City Corporation...	Thames.
Hamer, W. H., M.D., F.R.C.P. ...	29th June	2864-2915 ...	London County Council ...	Lee.
Hilleary, G. W. ...	29th June	2916-2977 ...	West Ham Corporation ...	Lee.
Hilton, R. ...	16th June	2567-2637 ...	Swindon Corporation ...	Thames.
Holmes, Basil, J.P. ...	15th June	1670-1751 ...	Commons and Footpaths Preservation Society.	Thames.
Houston, Sir Alexander C., K.B.E., C.V.O., M.B., D.Sc.	4th May	180-244 ...	Metropolitan Water Board	Thames.
Humphreys, G. W., C.B.E. ...	25th May	415-457 ...	London County Council ...	Thames
Hunt, F., F.S.I. ...	25th May	316-414 ...	" " " ...	Thames.
Halt, Hugh, D.C.L. ...	29th June	2789-2833 ...	" " " ...	Thames.
Johnson, C. S. ...	16th June	2345-2430 ...	Reading Corporation ...	Thames.
Karslake, Lieut.-Col. J. B. P. ...	4th May	1-179 ...	Metropolitan Water Board	Thames.
" " " ...	15th June	1353-1459 ...	" " " ...	Lee.
Keen, W. B. ...	29th June	3245-3299 ...	Lee Conservancy Board ...	Lee.
Longmore, Sir Chas., K.C.B. ...	13th July	3508(a)-3621 ...	Hertfordshire County Council and Local Authorities.	Thames and Lee
Marks, W. W. ...	13th July	3799-3813 ...	Bedfordshire County Council ...	Lee.
Martin, J. M., B.A., M.D., B.C., D.P.H.	29th June	3079-3107 ...	Gloucestershire County Council...	Thames.
Oldershaw, L. R. F. ...	15th June	1917-2013 ...	Maidenhead Corporation and Marlow U.D.C.	Thames.
Phillimore, The Hon. Godfrey W.	30th June	3300-3384 ...	Thames Transport Co., Ltd. ...	Thames.
" " " ...	20th July	3836-3865 ...	Water Power Users Committee ...	Thames.
Redesdale, Lord ...	16th June	2108-2176 ...	Oxfordshire County Council ...	Thames.
" " " ...	"	2253-2263 ...	" " " ...	"
Ryland, J. E. ...	16th June	2014-2107 ...	Esher and the Dittons U.D.C.; Ham U.D.C.; Hampton U.D.C.; Kingston Corporation; E. and W. Molesey U.D.C.; Sunbury U.D.C.; Surbiton U.D.C., and Teddington U.D.C.	Thames.
Salter, J. H. ...	25th May	561-691 ...	Thames Boating Trades Assn. ...	Thames.
Scurr, J. ...	20th July	3979-4009 ...	Hackney Borough Council; Stepney Borough Council; Poplar Borough Council.	Lee.
Simmons, Sir Anker, K.B.E. ...	16th June	2638-2732 ...	Henley-on-Thames Corporation...	Thames.
Skurray, T. ...	15th June	1537-1669 ...	Berkshire County Council ...	Thames.
Smith, W. ...	29th June	2978-3035 ...	Laton Corporation ...	Lee.
Stephenson, H. F., A.R.C.S., F.I.C.	1st June	1281-1352 ...	Thames Conservancy ...	Thames.
Stilgoe, H. R., M.Inst.C.E. ...	4th May	245-315 ...	Metropolitan Water Board ...	Thames.
" " " ...	15th June	1450-1512 ...	" " " ...	Lee.
Stockton, A. ...	16th June	2550-2566 ...	Banbury Corporation; Banbury R.D.C.; Bicester R.D.C.; Chipping Norton Corporation, and R.D.C.; Witney and Woodstock R.D.C.	Thames.
Stoneham, W. G. ...	30th June	3416-3437 ...	" " " ...	Thames.
Tough, R. N. ...	25th May	458-560 ...	Assoc. of Master Lightermen and Barge Owners.	Thames.
Taylor, G. Midgley, M.Inst.C.E.	13th July	3622-3755 ...	Hertfordshire County Council, and Local Authorities.	Thames and Lee.
Walker, L. C. ...	16th June	2431-2492 ...	Reading Corporation ...	Thames.
Watkins, T. W. ...	13th July	4010-4037 ...	War Office ...	"
Webb, P. H., M.B.E. ...	15th June	1818-1864 ...	Walton-on-Thames U.D.C. ...	Thames.
West, L. H., O.B.E., LL.D. ...	15th June	1858-1916 ...	Bucks County Council ...	Thames.
Wilkes, J. E., A.M.Inst.C.E. ...	16th June	2264-2345 ...	Oxford City Corporation...	Thames.
Withy, A. E. ...	16th June	2493-2549 ...	Wiltshire County Council	Thames.



## APPENDIX S.

*List of Statutes and Reports.*

## (a) LIST OF STATUTES DEALING WITH THE ADMINISTRATION OF THE RIVERS THAMES AND LEE.

*Thames.*

(23 Geo. II., Cap. 8) ... ..	1751
(11 Geo. III., Cap. 45) ... ..	1771
(15 Geo. III., Cap. 11) ... ..	1775
(15 Geo. III., Cap. 51) ... ..	1788
(15 Geo. III., Cap. 106) ... ..	1795
(15 Geo. III., Cap. 47) ... ..	1812
(30 Geo. II., Cap. 21) ... ..	1756
(14 Geo. III., Cap. 91) ... ..	1774
(17 Geo. III., Cap. 18) ... ..	1776
(50 Geo. III., Cap. 204) ... ..	1810
(52 Geo. III., Cap. 46) ... ..	1812
(54 Geo. III., Cap. 223) ... ..	1814
Thames Conservancy Act, 1857 (20 & 21 Vict., Cap. 147).	
Thames Conservancy Act, 1864 (27 & 28 Vict., Cap. 113).	
Thames Navigation Act, 1866 (29 & 30 Vict., Cap. 89).	
Thames Conservancy Act, 1867 (30 Vict., Cap. 101).	
Thames Navigation Act, 1870 (33 & 34 Vict., Cap. 149).	
Thames Conservancy Act, 1878 (41 & 42 Vict., Cap. 216).	
Thames Act, 1883 (46 & 47 Vict., Cap. 79).	
Thames Preservation Act, 1885 (48 & 49 Vict., Cap. 76).	
Thames Conservancy Act, 1894 (57 & 58 Vict., Cap. 187).	
Port of London Act, 1908 (8 Edw. 7, Cap. 68).	
Thames Conservancy (Appointments and Tolls) Provisional Order Act, 1910 (10 Edw. 7 and 1 Geo. 5, Cap. 133).	
Thames Conservancy Act, 1911 (1 & 2 Geo. 5, Cap. 57).	
Thames Conservancy Act, 1921 (11 & 12 Geo. 5, Cap. 80).	

*Lee.*

(3 Henry VI., Cap. 5) ... ..	1424
(9 Henry VI., Cap. 9) ... ..	1430
(13 Elizabeth, Cap. 18) ... ..	1570
(12 Geo. II., Cap. 32) ... ..	1739
(7 Geo. III., Cap. 51) ... ..	1766
(19 Geo. III., Cap. 58) ... ..	1778
(45 Geo. III., Cap. 69) ... ..	1805
(47 Geo. III., Cap. 72) ... ..	1807
(10 Geo. IV., Cap. 117) ... ..	1829

Lee Navigation Improvement Act, 1850 (13 & 14 Vict., Cap. 109).

River Lee Water Act, 1855 (18 & 19 Vict., Cap. 196).

Lee Conservancy Act, 1868 (31 & 32 Vict., Cap. 154).

Lee Conservancy Act, 1874 (37 & 38 Vict., Cap. 96).

\*Canal Tolls and Charges No. 6 (River Lee, &c., Order) Confirmation Act, 1894 (57 & 58 Vict., Cap. 205).

Lee Conservancy Act, 1900 (53 & 54 Vict., Cap. 117).

Lee Conservancy Act, 1921 (11 & 12 Geo. 5, Cap. 78).

## (b) LIST OF REPORTS OF ROYAL COMMISSIONS AND COMMITTEES BEARING ON THE INQUIRY.

Royal Commission appointed to enquire into the Prevention of Pollution of Rivers—First and Second Reports ...	1866, 1867
Royal Commission on Metropolitan Sewage Discharge—First Report (C. 3842) ...	1884
Select Committee on Thames River Preservation—Report (House of Commons, 4th August) ... ..	1884
Select Committee on the London Water Commission Bill — Special Report (House of Commons, 14th July) ...	1891
Royal Commission appointed to enquire into the Water Supply of the Metropolis (Lord Balfour)—Report (C. 7172) ...	1893
Royal Commission on the Water Supply within the limits of the Metropolitan Water Companies (Lord Llandaff)—Final Report (Cd. 25) ... ..	1899
Royal Commission on Sewage Disposal—Third Report (Cd. 1486) ... ..	1903
Royal Commission on Sewage Disposal—Fifth Report (Cd. 4278) ... ..	1908
Royal Commission on Sewage Disposal—Final Report (Cd. 7821) ... ..	1915
Royal Commission appointed to enquire into and report on the Canals and Inland Navigations of the United Kingdom (England, Wales and Scotland)—Fourth and Final Report (Cd. 4979) ... ..	1909
Rates Advisory Committee—Report on the Navigation of the River Thames (Cmd. 677)... ..	1920
Departmental Committee appointed to enquire into the provisions and effect of the Metropolis Water Act, 1902—Report (Cmd. 845) ... ..	1920
Water Power Resources Committee (Board of Trade)—Final Report ...	1921

\* Affected also the Thames.

